(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Gen 53. B(5)(1)(F)

JEFFERSON CIRCUIT COURT

DIVISION NINE

- - - - -

BROWN & WILLIAMSON :

TOBACCO CORPORATION, :

Plaintiff, :

vs. : Case No. 95-CI-06560

JEFFREY S. WIGAND :

Defendant. :

- - - - - - -

The videotaped deposition of Jeffrey S. Wigand, the Defendant herein, was taken before Special Commissioner Richard A. Revell, and reported by Thomas F. Runfola, a Registered Professional Reporter, pursuant to notice, at the offices of Middleton & Reutlinger, 2500 Brown & Williamson Tower, Louisville, Kentucky, on Friday, July 19, 1996, at 9:00 o'clock a.m.

- - - - - -

VOLUME 9

- - - - - -

http://legacy.library.ucsf.edu/tid/bip07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

APPEARANCES

Middleton & Reutlinger
401 South Fourth Avenue
2500 Brown & Williamson Tower
Louisville, Kentucky 40202
By Mr. James E. Williams,

and

King & Spalding
191 Peachtree Street
Atlanta, Georgia 30303
By Mr. Gordon A. Smith and
Mr. William C. Hendricks, III,

and

Chadbourne & Parke
30 Rockefeller Plaza
New York, New York 10012
By Mr. David L. Wallace, and
Mr. Bruce G. Sheffler

and

Parker & O'Connell
Suite 1340
Providian Center
400 West Market Street
Louisville, Kentucky 40202
By Mr. Michael J. O'Connell,

On behalf of the Plaintiff.

Morley, Johnson & Erwin
Suite 400
310 West Main Street
Louisville, Kentucky 40202
By Mr. Joseph V. Morley,

and

Shea & Gardner
1800 Massachusetts Avenue, N.W.
Washington, DC 20036
By Mr. John D. Aldock and
Ms. Laura S. Wertheimer

On behalf of the Defendant.

ALSO PRESENT:

U.S. Department of Justice
Criminal Division, Fraud Section
1400 New York Avenue, N.W.
Washington, DC 20035
By Ms. Jimmye S. Warren

and

Brown & Williamson
Tobacco Corporation
2600 Weaver Road
P.O. Box 1035
Macon, Georgia 31298
By Scott Appleton, Ph.D.

INDEX

EXAMINATION

By Mr. Sheffler Page 1279

EXHIBITS

Exhibit No. 58 Marked 1332
Exhibit No. 59 1336
Exhibit No. 60 1359
Exhibit No. 61 1406
Exhibit No. 62 1423

JEFFREY S. WIGAND,
having been previously sworn, as hereinafter certified, deposes and says as follows?

EXAMINATION

THE VIDEOGRAPHER: On the record. The time is approximately 9:00 a.m.

EXAMINATION

BY MR. SHEFFLER:

Q. Good morning, Mr. Wigand.
A. Good morning.
Q. According to Mike Wallace on the 60 Minutes broadcast back on February 4th, you told him that B & W manipulates and adjusts the nicotine fix, not by artificially adding nicotine, but by enhancing the effect of nicotine through the use of chemical additives like ammonia; do you recall that?
A. Yes, I do.
Q. Now, it is true, is it not, sir, that B & W does not artificially add nicotine to its cigarettes; isn't that true?
A. I think that's true.

http://legacy.library.ucsf.edu/tid/bip07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1280

Q. And did you tell that to Mr. Kessler or Dr. Kessler when you spoke with him back in '94?
A. I most certainly did.
Q. You did?
A. That B & W did not add nicotine to its cigarettes.
Q. You told that to Dr. Kessler?
A. Yes.
Q. Now, you are aware, of course, that while you were at Brown & Williamson, and even as of today, B & W, like all cigarette manufacturers, makes cigarettes with different levels of nicotine?
A. I realize that.
Q. And the reason B & W has brands of cigarettes with different levels of nicotine is because that's what consumers prefer. Some consumers prefer full-flavored nicotine cigarettes, some consumers prefer lower nicotine cigarettes, and that's what Brown & Williamson produces; is that correct?
A. My understanding is that Brown &

Page 1281

Williamson provides tobacco products that meet consumers' tastes. I didn't know that they provided for nicotine requirements.
Q. And nicotine is part of taste, isn't it?
A. I don't think so.
Q. Sir, isn't it true that on 60 Minutes, Wallace said that B & W manipulated and adjusted the nicotine fix? Do you recall him saying that?
A. You will have to refer me to the page.

MR. WALLACE: It's Exhibit 9.

Q. If you look at page two, do you see where Wallace is discussing -- what he says is, Dr. Wigand says that Brown & Williamson manipulates and adjusts that nicotine fix; do you see that?
A. Um-hum.
Q. Now, was the word "nicotine fix" your word or his word?
A. I believe it's Mr. Wallace's word here.

Page 1282

Q. Okay. So is it your claim, sir, today that B & W adjusts a nicotine fix by providing brands of cigarettes with varying levels of nicotine?
A. I would say Brown & Williamson, as well as other tobacco manufacturers, adjust nicotine delivery by use of additives. They increase the yield of usable nicotine so they get a pharmacologically active form of nicotine.
Q. Okay. Sir, and as you have stated in the past, those additives refer to additives used in what is sometimes called ammonia technology; is that correct?
A. Ammonia technology or ammonia additives or substances that would change the basisity of smoke or change free -- change nicotine which is currently available in plant systems from an inactive form to a pharmacologically active form.
Q. Okay, sir. I want to break that down today and address that claim?

Page 1283

A. Um-hum.
Q. As I understand your testimony now, the claim that you were talking to Wallace about was not that nicotine was added in some fashion directly to the cigarette to adjust its delivery, but that through ammonia technology there was an increase in absorption of nicotine; is that the testimony?
A. I don't think that's what I just said. I didn't think I said anything about absorption. If you want to talk about absorption, we can definitely move into absorption.
Q. I want to try to get an understanding of what your testimony is right now. You said that it changes the acidity of the nicotine with ammonia technology?
A. I don't think I said that.
Q. Okay, sir. What does ammonia technology do in your view?
A. What does ammonia technology do or ammonia chemistry?

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Digitized by the Internet Archive in 2014 http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1284

Q. Well, can we agree on one thing, sir, there are a number of ways to introduce ammonia into tobacco. There are a number of ways to do that, right?
A. I believe there are, yes.
Q. And one way to refer to this process is ammonia technology?
A. Or root technology or ammonia chemistry. I mean there is a --
Q. Well, which way do you want, what do you want to call it?
A. I think in many cases they are synonymous. We can talk ammonia chemistry, root technology.
Q. Which term do you want to use so we are speaking the same language?
A. Let's say ammonia chemistry.
Q. Okay. What does ammonia chemistry do to the smoke in your opinion -- do to the nicotine in the smoke in your opinion?
A. What does it do to the smoke or what does it do to the nicotine?
Q. Let's start with the nicotine.

Page 1285

What does it do to the nicotine in smoke in your opinion?
A. What does it do to nicotine in smoke? Well, it does things before getting into the smoke.
Q. What does it do to nicotine?
A. Nicotine, as it occurs in plants, is formed in a salt. It's both in malate and citrate salts. Those salts have limited biological activity or pharmacological activity. It's not until nicotine is created into a free-base, that is by through, change in pH which can be accomplished through ammonia chemistry or ammonia technology that it converts these free salts -- these salts into what is called free-base nicotine or taking a -- what is commonly referred to a protonated form of nicotine and creating the free-base form of nicotine.
That is the pharmacologically active aspect or element of nicotine.
Q. Okay, sir. Let me just see if I understand what you are saying. As

Page 1286

naturally occurring in tobacco, the tobacco plant, nicotine is in a salt form?
A. Um-hum.
Q. And then through ammonia chemistry, nicotine is turned into a base form?
A. Free-base.
Q. Okay. That's also called, just so I have my terminology correct, that's called a non-protonated form?
A. Non-protonated form.
Q. It's also called a non-ionized form?
A. I don't know whether it could be called non-ionized form.
Q. Well, you know an ionized form is a salt form; is it not?
A. Yes.
Q. And non-ionized would be the base form; would it not? Have you ever seen non-ionized to refer to nicotine as a base?
A. As non-ionized? I have never heard the term used in that context, no.

Page 1287

Q. That's fine. You have seen the term extractable?
A. Yes, I have seen extractable
Q. And you have seen the term non-extractable?
A. Um-hum.
Q. Is extractable the same as non-protonated? Referring to nicotine, of course.
A. Is extractable -- could that also be put in the context of non-protonated? I'm sure it could be.
Q. We have got these two forms of nicotine. The one that naturally occurs in the tobacco according to you is a salt or what is called protonated or what is called bound or what is called non-extractable?
A. That's not just according to me. There are a number of literature references.
Q. Right now I'm asking you. Those terms all refer to the same thing?
A. Within what we were using them

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by Legacy Industry Documents Library - ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1288

this morning, yes, so far.
Q. And the terms that refer to the nicotine in smoke after ammonia chemistry according to you are non-protonated free extractable or free-base?
A. No, I'm not going to use extractable in here. I'm sorry.
Q. Then we will take that term out if you would like. For now let's just talk about -- let's just talk about ionized and nonionized.
A. No, no. We are going to talk about pharmacologically-active nicotine versus non-pharmacologically active.
Q. Well, sir --
A. We are going to say pharmacologically active nicotine as free-base and we're going to talk about non-pharmacologically active nicotine as bound or salt.
Q. Fine.
A. Let's keep it in that context.
Q. Whatever you say, sir. We are just trying to get terminology that you

Page 1289

and I can understand. You are aware, are you not, that ammonia occurs naturally in tobacco?
A. I'm aware of that.
Q. And you are aware that ammonia is produced in the body every day through, as a by-product of normal metabolism; you are aware of that, aren't you?
A. I don't think ammonia is produced per se but go ahead, it's conjugated.
Q. Is it true, sir, that the daily exposure to ammonia from cigarettes treated with ammonia is approximately 2400 times less than ammonia produced by normal bodily functions?
A. I don't know about that answer. I can tell you that we are not discussing -- are we talking about the biological effects of ammonia or are we talking about -- --
Q. Right now, sir, please, if you would answer my question. Would you agree, sir, that there are no adverse

Page 1290

health effects associated with the use of ammonia from -- as it's used in ammonia chemistry and cigarettes? We are talking about the toxicological properties of ammonia right now, okay, just so you understand where I am coming from. Would you agree, sir, that there are no adverse health consequences due to the use of ammonia chemistry in cigarettes?
A. I don't think I have claimed there is any adverse health effects associated with the use of ammonia.
Q. I'm not saying you have, but would you agree with me that there are no adverse health consequences that have been associated with the use of ammonia chemistry in cigarette manufacturing?
A. I won't say no adverse effects. I will say, as I understand them being used, there is no adverse effects, but no adverse effects as they are using no, I will give you that broader.
MR. SHEFFLER: Could you read the answer back, please? There were three

Page 1291

or four nos, I'm not exactly sure what the answer is. Would you read it back, please?
(So read.)
Q. Okay. Well, sir, I really don't understand what you said. Now, as you understand the cigarettes to be manufactured with ammonia chemistry, at the time you were at B & W; isn't it true that you were unaware of adverse health effects that was associated with the use of ammonia technology at that time?
A. I think that's a fair statement, yes.
Q. Okay. And again, sir, just so the record is clear, you are not claiming that the ammonia chemistry changes the total amount of nicotine from a cigarette, are you?
A. I don't think I have claimed that.
Q. Okay. Now, when you say that ammonia chemistry frees up the nicotine, is that part of your basis for claiming or

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Sponsored by the Legacy Tobacco Documents Library
http://legacy.library.ucsf.edu/docs/ytfl0001

Page 1292

is that the basis for claiming that it allows nicotine to be more rapidly absorbed in the lungs?
A. I think that comes directly out of the Leaf Blenders manual.
Q. Okay, sir. Let me ask you the question, all right? You have made certain claims on 60 Minutes, and Mike Wallace represented that you told him certain things on 60 Minutes. Is it true that you believe that ammonia technology enhances the effect of nicotine because it allows for nicotine to be more rapidly absorbed in the lungs, and, therefore, affect the brain and central nervous system?
A. Yes.
Q. Isn't that your claim?
A. Yes, that is my claim.
Q. According to you, sir, the way that ammonia chemistry changes a nicotine salt to a nicotine free-base, or bound nicotine to free nicotine, the way this occurs, according to you, is by using

Page 1293

ammonia technology to change the Ph of the smoke; correct?
A. Well, there is a number of factors that is ammonia is used as, and I would be more than willing to take you through them if you like.
Q. Sir, can you answer my question?
A. That is one of the ways that ammonia works is by changing the pH of the smoke. One.
Q. What is the other ways that ammonia works to change nicotine from a salt to a base?
A. I think the Leaf Blenders manual clearly shows this that also nicotine helps — I'm sorry, ammonia also helps scavenge nicotine from one blend component to another. Therefore, equalizing the nicotine distribution within the rod.
Q. Okay, sir.
A. I think that's specific. And that is specifically referenced in Leaf Blenders manual.
MR. SHEFFLER: Can we go off the record for a moment, your Honor?
THE COURT. Sure.
THE VIDEOGRAPHER: Going off the record. The time is approximately 9:14.
(Discussion held off the record.)
- - - - -
(Reporter's note: At this point, the testimony resumes in the Confidential and Sealed volume of the transcript.)
- - - - -

Page 1304

THE VIDEOGRAPHER: Back on the record. The time is approximately 9:18.
BY MR. SHEFFLER:
Q. All right, sir. In the statements you made in 60 Minutes you said, there is extensive use of this technology which is called ammonia chemistry that allows for nicotine to be more rapidly absorbed in the lungs and, therefore, affect the brain and central nervous system. Okay?
A. Yes.
Q. How does scavenging nicotine affect absorption into the lungs?
A. How does scavenging nicotine affect absorption into the lungs? Scavenging nicotine is not part of absorption into the lungs, it's changing nicotine from a salt to a free base. That affects the absorption in the lungs.
Q. So the fact that nicotine equalizes the nicotine in the cigarette rod does not affect the absorption of the nicotine from the cigarette in the lungs?

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Sponsored by the Legacy Tobacco Documents Library
http://legacy.library.ucsf.edu/docs/ytfl0001

Page 1305

A. I don't think I said that.
Q. Okay. What I am trying to concentrate on, sir, is this claim here in CBS where you said, the use of ammonia chemistry allows for nicotine to be more rapidly absorbed in the lungs and, *therefore*, affect the brain and central nervous system. That's the claim I want to focus on.
What does ammonia technology do in your opinion to accomplish this rapid absorption in the lungs other than changing the pH in the smoke to change the nicotine salt to a nicotine free-base?
A. I think it's well-established and well-known that nicotine as a salt does not permeate membranes and that nicotine --
Q. Sir, my question is, other than changing nicotine from a salt to a base, what is it that ammonia technology, if anything, does to effectuate a rapid absorption in the lungs, in your view?
A. My view is it changes nicotine

Page 1306

from a non-absorbable, non-pharmacoactive substance --
Q. Is there anything else that it does besides changing --
A. Am I finished? I didn't think I was finished yet.
THE COURT: Go ahead.
THE WITNESS: Now, it's pretty hard when I'm derailed.
Q. I will ask the question again; we will start again. Other than changing nicotine from a salt, which you have told us is non-pharmacologically active, to a base, which you told is pharmacologically active, and, therefore, in your opinion allows for more rapid absorption in the lung, is there anything else that you claim ammonia chemistry does to allow for rapid absorption in the lungs?
A. Is there *anything* else? I think if you look at the simplest point of it, yeah, that's the way it works.
Q. Okay. So if I understand what you are saying, ammonia chemistry allows

Page 1307

nicotine or permits or does change nicotine from a salt to a base and that allows for the rapid absorption in the lungs and, therefore, affects the brain and central nervous system which was the claim you made on 60 Minutes; have I got it straight now?
A. I would like to add just some further clarification points. I think that's partly right. I think nicotine is an amine. I think people know that amines, when you change pH, change absorption or change structure, ammonia chemistry changes.
Q. The structure of nicotine from a salt to a base. You have told us that six times.
A. Okay.
Q. And now, that's it, right?
A. Okay.
Q. So you believe that ammonia chemistry changes this nicotine from a salt to a base by changing the pH in the smoke; isn't that right?

Page 1308

A. That's one thing that ammonia chemistry does.
Q. Okay, sir. What else does it do -- again, we are only focusing on this claim that you made at CBS right now. We have to take it one step at a time.
A. Okay.
Q. We will spend as much time as necessary to address this claim. But I want to nail this claim down. Is it not your claim that ammonia technology effectuates the rapid absorption of nicotine in the lungs by changing the pH of smoke and, thereby, changing nicotine from a salt to a base? Is that your claim? Is that the basis for your statement on 60 Minutes?
A. The statement I made on 60 Minutes is as follows: The use of ammonia *chemistry* allows for nicotine to be more rapidly absorbed in the lungs.
Q. And the basis for that -- you didn't give all the bases here, but the basis for that as you have testified today

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1309

1 is that ammonia chemistry changes the pH
2 in the smoke, the change in the pH in the
3 smoke changes nicotine, which is not
4 pharmacologically active in Jeffrey
5 Wigand's view, to a pharmacologically
6 active product.
7 A. No, that is not correct, what
8 you just said.
9 Q. Okay, sir.
10 A. You said that nicotine is not
11 pharmacologically active. As a salt it is
12 not as pharmacologically active as it is
13 as a base.
14 Q. Okay, fine.
15 A. By having it as the free base
16 allows for absorption through the
17 membranes.
18 Q. Okay, sir. Now, that is your
19 claim that you made on CBS, nicotine is
20 more rapidly -- you didn't say only, but
21 nicotine is more rapidly absorbed in the
22 lungs if it is in a free-base form,
23 according to you; right?
24 A. Um-hum.

Page 1310

1 Q. And to get nicotine as a salt,
2 which you have told us it is naturally in
3 tobacco, to nicotine as what you claim as
4 a free base, you have to -- one of the
5 ways to do that is use ammonia chemistry;
6 right?
7 A. Yes.
8 Q. So one of the -- strike that.
9 The testimony that you have said here
10 today, as I understand it, is that with
11 ammonia chemistry you change the pH of the
12 smoke, allowing the nicotine as a salt to
13 change into nicotine as a free base; is
14 that correct?
15 MR. ALDOCK: I object, I don't
16 think he has limited it to the smoke.
17 Q. Nicotine in the tobacco will
18 change the pH in the smoke and will change
19 the nicotine from a salt to a base;
20 correct?
21 A. In the broadest terms, yes. I
22 think there is a lot more specific science
23 that could go with that.
24 Q. Well, sir, is the more specific

Page 1311

1 science the mechanisms that are working
2 out there or is there something additional
3 happening in ammonia chemistry other than
4 changing the pH of the smoke that makes
5 salt go to base?
6 A. That's one.
7 Q. What's the other ones?
8 A. The other one is scavenging of
9 nicotine from one blend component to
10 another.
11 Q. Sir, you just told me a moment
12 ago that scavenging of nicotine did not
13 affect the absorption of nicotine in the
14 lungs.
15 A. It gets nicotine from
16 intracellular within the leaf or the cells
17 of tobacco to extra-cellular. It frees up
18 the nicotine that is bound in the form of
19 a salt, and allows it to be converted to
20 what is considered free-base nicotine.
21 Q. All right, sir. I understand
22 that. And you said that was only one.
23 A. That's one part.
24 Q. The changing of a nicotine from

Page 1312

1 a salt to a base is one way that it allows
2 nicotine to be more rapidly absorbed in
3 the lung. Now, I don't want you to tell
4 the me that way again. I want you --
5 right now. In answer to my question.
6 I want you to tell me some other
7 way, if you know of any, that nicotine is
8 more rapidly absorbed in the lungs as a
9 result of ammonia chemistry?
10 A. We could talk about acetaldehyde
11 as a co-factor.
12 Q. Is acetaldehyde part of ammonia
13 chemistry, sir?
14 A. No, but it's part of nicotine
15 absorption.
16 Q. Sir, you have to answer my
17 question sometime. We have been here five
18 days. Can you listen to my question and
19 answer it? We dealt with acetaldehyde on
20 day three. We are now talking about
21 ammonia technology.
22 THE COURT: He is confining it
23 to that.
24 Q. We're talking about ammonia

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1313

chemistry. We are talking about the claim you made on CBS. And we are talking about niconne's rapid absorption in the lung. Sir, will you please tell for me if there is any additional way that ammonia chemistry effectuates this rapid absorption other than changing the pH of the smoke?

A. Yeah, that's a fair assessment. Let's move on.

Q. Okay.

A. But I'm not going to repeat every word you say to me.

Q. You don't have to repeat every word, you can say yes or no. There is a record, you don't have to repeat every word. If it's correct, you can say yes. If it's incorrect, you can say no.

A. Okay.

Q. Now, sir, as I understand your testimony, for your claim on 60 Minutes to be correct, and that claim that I am referring to is again that the use of ammonia chemistry allows for nicotine to

Page 1314

be more rapidly absorbed in the lungs, and, therefore, affect the brain and the central nervous system.

As I understand what we have done today, you have explained for us that ammonia chemistry does this by changing the pH of the smoke. Which way does the pH of the smoke go, up or down?

A. Up.

Q. So ammonia chemistry changes the pH in the smoke up. Now, for your claim to be correct, would you agree with me that there are at least two propositions that must be true? Number one, ammonia chemistry as used at B & W must result in an increase in the pH in tobacco smoke?

A. Okay.

THE COURT: By increase we are talking about a higher pH?

MR. SHEFFLER: Higher pH in the --

THE WITNESS: Only in the smoke.

THE COURT: Well, could we agree

Page 1315

that -- and correct me I don't know the science of this -- could we agree if a person puts a cigarette in their mouth and never lights it there is no effect? We are talking about smoke in other words.

MR. SHEFFLER: I thought we were, your Honor, and that's why my questions were directed to this. The only thing absorbed in the lungs is smoke. If it doesn't change it in the smoke, you know, it's a moot point.

A. Let's go on with smoke.

Q. You agree, sir, that for your proposition, your claim to CBS, for that claim to be true, it must be true that ammonia technology increases the pH of the smoke?

A. So without ammonia technology we have one pH and if you add ammonia chemistry to a cigarette, there are various forms -- you have a change in the pH of smoke?

Q. Right.

A. I will agree with that.

Page 1316

Q. But the change has to be up, it has to be increased?

A. Yes.

Q. I mean, if it was decreased, your claim would be false?

A. No.

Q. Sir, as a hypothetical. If you used, if you were shown that ammonia chemistry, in fact, decreased pH in smoke, all right, if you had a cigarette that didn't have any ammonia chemistry on it at all, and you compared it to a cigarette that had the use of some tobacco with ammonia chemistry, and you found that the pH did not increase, that would be contradictory to your theory of ammonia chemistry?

A. I don't think that's my theory. I think --

Q. It would be contradictory to your understanding of ammonia chemistry?

A. And it would be contradictory not only to my understanding but the understanding of Brown & Williamson's Leaf

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1317

Blenders manual as well as a lot --
Q. Sir --
THE COURT: Objection sustained.
Q It would be contradictory to your understanding, would it not?
A. As well as other scientists.
Q. Now, sir, the first proposition for your statement to be true is that ammonia technology, as used at Brown & Williamson, raises the pH of cigarette smoke. That must be a true fact for your claim to be correct?
A. That would be one fact, yes.
Q. Another fact would be, for your claim to be correct, the claim you made on 60 Minutes, another fact that must be true is that nicotine is more rapidly absorbed in the lung in its base-free form, rather than in its salt form?
A. That would be fair, yes.
Q. Okay. So in other words, if I understand what you are saying, sir, the form of the nicotine affects the absorption rate in the lung?

Page 1318

A. Penetration of the membrane and absorption, yes.
Q. All right. Let's -- those are two different points and I want to address each one separately. So you know where I'm going. You don't have to address both of them at the same time. I'm going to address each one in order.
The first point you made is that increasing the amounts of -- strike that. Is that increasing the amount of ammoniated chemistry in treated tobacco will increase pH in a cigarette. That's the first claim?
A. Now we are changing. We are saying pH in a cigarette or pH in smoke? Which one is it?
Q. Increasing ammonia chemistry in tobacco.
A. Let's take it in a cigarette and smoke.
Q. If you increase -- strike that. If you increase the treated tobacco, treated with ammonia tobacco, in

Page 1319

a blend of a cigarette, you will increase the pH in the smoke. That's the first claim; right?
A. If you treat ammoniated -- if you treat tobacco with ammonia compounds you will change the pH of the smoke, yes.
Q. All right. Now in a cigarette blend -- not all of the manufactured cigarettes at Brown & Williamson's -- in their manufactured cigarettes, blends, there was never a product manufactured where all of the tobacco was treated with ammonia, was there?
A. Where all the tobacco was treated with ammonia?
Q. Can you name a single product, sir?
A. No.
Q. In fact, sir, isn't it true that in manufacturing cigarettes that were sold during the time you were there, ammonia technology was employed in making the reconstituted tobacco part that was used in the blend of the commercial cigarettes?

Page 1320

A. That's not correct.
Q. Okay, sir. Ammonia technology was not used or employed in making reconstituted tobacco?
A. I didn't say that.
Q. Let me ask the question again. At the time you were there, was ammonia technology employed in making reconstituted tobacco which was then part of a cigarette blend?
A. That is correct.
Q. Okay. Do you know, sir, what the highest percentage of recon was used in the cigarettes marketed during the time you were at Brown & Williamson?
A. You have no problem with confidential information now? Or is that something that you want to -- I don't want to violate --
MR. SHEFFLER: Let's go off the record.
THE VIDEOGRAPHER: Going off the video record. The time is approximately 9:34.

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1321

- - - - -

(Reporter's note: At this point the testimony resumes in the confidential volume of the transcript.)

- - - - - -

Page 1325

THE VIDEOGRAPHER: Back on the video record. The time is approximately 9:36.

BY MR. SHEFFLER:

Q. Sir, isn't it true that at the time you were at Brown & Williamson, CPCL was a type of *reconstituted* tobacco that was treated with ammoniated chemistry?

A. CPCL was a type of reconstituted tobacco that was treated with chemicals that would produce ammonia.

Q. Well, as we have been using the term, that's ammonia chemistry; right?

A. Broader, yeah, but I'm saying it's chemicals that generate ammonia. DAP is not --

Q. Sir, again, we are trying to address the claim that you made at 60 Minutes when you talked about ammonia chemistry. When you used that term there, were you talking about the same type of way that CPCL was manufactured?

A. Um-hum.

Q. All right. So CPCL is a type of

Page 1326

reconstituted tobacco that uses ammonia chemistry, correct?

A. Yes.

Q. Now, if the claim you made on CBS, that B & W enhances nicotine absorption with ammonia technology or ammonia chemistry is correct, increasing the amount of CPCL in the blend of a manufactured cigarette will increase the pH in the smoke; is that correct?

A. Well, *theoretically*, yes, what you are saying. We are not dealing with the total package here, because ammonia chemistry is also used as casing on Burley.

Q. We are going to talk about that, sir. Right now I want to talk about ammonia technology and reconstituted tobacco. Isn't it true, sir, that the vast majority of the cigarettes manufactured and sold by Brown & Williamson while you were there used ammonia chemistry in the manufacture of reconstituted tobacco and not in casings?

Page 1327

A. No, I'm sorry, they used DAP as a casing on Burley.

Q. Which process was more common at B & W? Wasn't it reconstituted tobacco?

A. Both processes were.

Q. Which was more common? They both can't be more *common*.

A. More common, CPCL.

Q. Okay, sir. Can you name the --

All right, sir. Now, isn't it true that the introduction of reconstituted tobacco, or CPCL, is an introduction of more sugars than the rest of the tobacco in the blend of the cigarette? Strike that question. That's not a very good question. Let's start again.

Isn't it true, sir, that CPCL, or reconstituted tobacco, is heavier in sugars than regular tobacco in a cigarette blend?

A. I think -- yes.

Q. And the introduction of CPCL or *reconstituted* tobacco, which is heavier in

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1328

sugars than the other parts of the blend, will result in the increased overall blend sugar concentrations, correct?
A. Yes.
Q. Acids are among the pyrolic by-products of sugars; are they not?
A. As well as acetaldehyde.
Q. And the introduction of acid would have the effect of lowering the pH in smoke; would it not?
A. That's one of the effects that could happen by adding sugars. You would lower pH because sugars burn to form acids, yes, as well as acetaldehyde.
Q. When we are talking about pH, sir, pH is -- define that for us. What is pH?
A. The log of the hydrogen ion concentration.
Q. And acids will lower pH, correct? Will lower the pH value, correct? If you add acids to a liquid mixture and measure the pH it will lower the pH; will it not?

Page 1329

A. Not necessarily.
Q. In this case, sir, the overall effect on smoke pH of introducing a blend that is heavier in sugars, okay, would have the effect of lowering pH; would it not?
A. It may, depending how it's compensated with the things that increase the pH.
Q. Okay. So as I understand what you are saying, ammonia has the effect of increasing pH. That's what you told us?
A. I think I have said that, yes.
Q. And you have also told us that acids have the effect of lowering pH?
A. I think I have agreed with that, but I think that's -- in the absolutes that's true, yes.
Q. Okay. And CPCL had both factors in it when it was added to cigarette blends. It had the factor that there was an increase in pH attributable to ammonia, and there was a decrease in pH attributable to acids from its sugars?

Page 1330

A. I don't know of the pH of CPCL was ever measured looking at just sugars.
Q. Do you know if it was ever measured, sir, looking at just pH?
A. CPCL alone? I can't recall that.
Q. Was it ever measured as used in a cigarette blend?
A. I believe it has.
Q. Okay, sir. When you were at Brown & Williamson, was there a study done that compared or tested the smoke of a pH, the smoke pH of a tobacco blend without ammoniated treated CPCL and a tobacco blend with CPCL?
A. Yes.
Q. Okay, sir. Who did that study?
A. I believe B & W did it as well as B.A.T. Southampton.
Q. I'm sorry, what was that again?
A. Why don't you ask me the question again?
Q. Okay, sir. What study was done when you were at B & W that compared the

Page 1331

smoke pH of a tobacco blend without CPCL and the smoke pH of a tobacco blend with CPCL?
A. And you are asking me to recall a specific study?
Q. You said there was one. I'm just asking if you will name it for us.
A. I can remember looking at data which indicated the smoke pH increased with the addition of CPCL and with ammonia product.
Q. This was data done on CPCL?
A. I believe it was done on a complete cigarette with and without CPCL.
Q. Was this done at B & W?
A. It's may have been done either at B & W or done at B.A.T. Southampton or B.A.T. Germany.
Q. Okay. You are sure you have seen that data, sir?
A. I'm pretty sure I have seen this data.
Q. And you have looked at all the data, the log books, the study, the way it

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by UCSF Industry Documents Library http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1332

was performed? You can answer.
A. I'm sorry. Have I looked at all the data?
Q. Did you look at the data? Did you look at the lab book? Did you look at the study? Was it a study that was published? Was it reported?
A. I can't recall.
Q. Okay. Well, sir, let me show you a study that was done at B & W that did compare the results of adding CPCL to a cigarette and then measuring the pH to see whether it went up, as you claim it would if your claim to CBS was true, or did not. Okay?
A. Okay. Let's look at the data. Are we going to be looking at all the data or just select data?
Q. Well, sir, I will hand you what we will mark first as Wigand 58.

- - - - -

Thereupon, Wigand Exhibit No. 58 was marked for purposes of identification.

Page 1333

- - - - -

BY MR. SHEFFLER:
Q. Now, you see, this study was done in April 21st, 1994; isn't that right?
A. Um-hum.
Q. It was actually done after you left, wasn't it?
A. Um-hum.
Q. It's from Brown & Williamson Tobacco Corporation, isn't it?
A. Yes.
Q. The development center work request; do you see that?
A. Um-hum.
Q. What is the development center work request?
A. It's a request sent to the development center.
Q. To do what?
A. To run prototypes, to run --
Q. Prototype products, right?
A. Prototype products, or run products for CPT or run products for

Page 1334

Dupont. It did many functions, it had many functions.
Q. One of its functions was to create test products for physical testing at Brown & Williamson's R & D, right?
A. Yes.
Q. In this report, this is a request for certain products to be manufactured so that the purpose of this study could be performed; right?
A. I assume so. I don't see -- all I see so far is just a request to study the effect of CPCL on physical, chemical and sensory products of cigarettes and measure the survivability of CPCL in cigarettes.
Q. This was a request to the manufacturer of these cigarettes to carry out the purpose of this study which is stated right there as, as you read, to study the effect of CPCL on the physical, chemical and sensory properties of cigarettes. Right?
A. And to measure the survivability

Page 1335

of CPCL in cigarettes. I don't know what that -- but this is a 1994 study. I don't see how that helps me here.
Q. Sir, I'm going to give you the entire study.
A. Of 1994?
Q. Let me ask you this, sir, can you read lab notebooks?
A. I can.
Q. Can you read lab notebooks of experiments that were generated at B & W?
A. Yes, but this is 1994, well after I left.
Q. Sir, the claim that you made here on 60 Minutes was that ammonia chemistry raises pH of cigarette smoke. I am entitled to examine whether that claim is correct.
A. In 1994?
Q. In 1996.
A. How about 1993?
Q. How about 1996, sir?
A. How about 1992?
Q. Let me ask you this, are you

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1336

telling me that the smoke pH was raised by ammonia chemistry in 1992, but is not raised by ammonia chemistry today? Are you willing to say that, sir?
A. No. I would like to understand what the conditions are, what the blends are --
MR. SHEFFLER: Okay. Let's mark this, next.
- - - - -
Thereupon, Wigand Exhibit No. 59 was marked for purposes of identification.
- - - - -
THE COURT: 59.
THE COURT: Do you want this over to the witness?
MR. SHEFFLER: Yes, your Honor, please.
BY MR. SHEFFLER:
Q. Sir, let me hand you a copy of Exhibit 59. And you have there in front of you copies of the work, laboratory workbook, pages of this experiment that

Page 1337

was performed at B & W's laboratories on CPCL. Do you see that, sir?
A. I assume that. I can't tell that from just looking at this.
Q. Take your time, sir. Take your time and review it. It's not very long. There are computer printout pages attached to it. But -- take your time and look at it.
MR. ALDOCK: 25 pages, right?
Q. The computer printout is most of it.
A. Are you asking me to interpret this complete document?
Q. Every time I have handed you a document, sir, you have insisted on reading it. If you don't want to read it I will ask you some questions.
A. I will read it, thank you.
THE COURT: Have you not read this one before?
THE WITNESS: Sir, this was performed in 1996. This has got 5-15-1996 on it.

Page 1338

MR. SHEFFLER: Your Honor, there may be some confusion here. I gave Mr. Wigand a copy of a lab notebook document that was performed after he left, an experiment performed after he left. The purpose of this, sir, is because Mr. Wigand as chief of R & D can interpret lab notebooks as he has testified he has done.
This was an experiment at Brown & Williamson on the very thing that he claims was one of the two principal elements of his claim made on CBS. This, your Honor, is the experiment that Mr. Wigand has suggested, which demonstrate whether or not pH is going up or going down with the inclusion of CPCL. And I'm simply asking him to review it so I can question him about it.
THE COURT: Go ahead.
THE WITNESS: With all due respect this was something that was done well after my time. I would prefer reviewing data that would be contemporary at the time I was at Brown & Williamson.

Page 1339

MR. SHEFFLER: Your Honor, I don't have any data, because they didn't do the test until after he left. The only test we have, your Honor, is here. This is it.
MR. ALDOCK: They can have a test that says they think he is wrong. To ask him to interpret the test and comment on a test, he has never seen it, they hand it to him in a deposition, in a situation where we haven't been able to take discovery to get it does seem to be a bit much.
His opinion isn't based on it since it was obviously created after he left the company. They have contrary evidence to his opinion but it was done after he left.
THE COURT: They are still permitted to ask him. This was not prepared subsequent to his statement on CBS. So it could not have been anticipating that he would make such a statement. So it's –

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by UCSF Industry Documents Library http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1340

MR. SHEFFLER: The problem, your Honor, is he has made these claims on CBS and he has claimed that smoke pH is changed with ammonia chemistry. That's his claim. I have proof that that claim is false. And the proof was developed that Brown & Williamson, and it was developed in the format of the same type of studies he reviewed for four years while he was there purportedly. I don't understand why Mr. Wigand has a problem reviewing it now.

THE COURT: I've already said he may review it and you may question him about it.

MR. SHEFFLER: Thank you, your Honor.

A. What does NH mean in this?

Q. What page are you on, sir?

A. On the fax, page seven, the third page, what does NH mean?

Q. Where is it?

A. It's right in the top, chemistry, alkaloid sugars NH, comma.

Page 1341

What is NH? Is there a legend somewhere on this that I can go to look at these abbreviations?

Q. Total nitrogen.

A. I don't know.

THE COURT: Is NH a chemical symbol?

THE WITNESS: No, it would be -- NH3 would be ammonia. I don't know of anything that's NH.

Q. I don't know, sir. You are the person who was the head of R & D where this test was done.

A. No, I wasn't head of R & D when this test was done.

Q. You were head of R & D at the same place where this test was done for four years and supposedly reviewed documents at the time. Now, you can ask me what a symbol or an abbreviation is in here, and I may or may not be able to tell you.

A. You have your expert with you. What is NH?

Page 1342

Q. The person with me is Dr. Scott Appleton, okay. He is a company representative of B & W. Okay?

A. I'm just asking for what NH is.

Q. I don't know.

A. Okay.

Q. Do you know what smoke pH is, sir?

A. That I do.

Q. Is it there in the chemistry?

A. I think so.

Q. Is it one of the things they analyzed for?

A. I'm going through this, I haven't gotten through it yet.

Q. I'm sorry.

A. I'm asking questions as I go through. I mean, I'm reading a document. You are going to ask me for a technical interpretation I need to read it. I have got on the front page, alkaloids. I think ALK means alkaloids. Does it? Is that what the chemical --

Q. We are back to the front page now?

A. Yes, I'm trying to understand alkaloids. Which alkaloids are we measuring?

Q. What alkaloids did they measure when they did total measurement of alkaloids in tests?

A. I'm asking specifically what alkaloids --

Q. Total alkaloids, sir.

A. Okay. Total alkaloids.

Q. Does it say anything else?

A. I don't know. It just says ALK.

Q. Okay. Mr. Wigand, are you going to nitpick with every single piece of this document?

MR. ALDOCK: Your Honor, Objection.

Q. What's the purpose -- your review of the document, sir, is to answer my questions.

MR. ALDOCK: This is a scientific document, your Honor. He has never seen it before.

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1344

THE COURT: He has got to be given an opportunity to see it if he has never seen before. He says he has never seen it before.
MR. SHEFFLER: I have no problem with that. But to say, your Honor, that this is a scientific document he has never seen before ignores the fact that these lab notebooks were done routinely at B & W every day by the department he was in charge of for four years. And -- so this is not, he didn't see every one the four years he was there either.
THE WITNESS: Nor have I claimed that. That I have seen every notebook.
THE COURT: Did you routinely get studies like this and would you have to pour over them and make interpretations from them?
THE WITNESS: Normally, I --
THE COURT: Was that a part of your duties?
THE WITNESS: Some of what I

Page 1345

got, your Honor, was finished reports that had data attached. This is out of a lab notebook. To take data out of the lab notebook is just taking one experiment. I'm going need to pour through it, look at the data, look at the statistics, understand what the experimental methodology was.
I don't have a date on this. I don't know who did the work. I don't know where the work was done based on the cover page. So from an experimental design point of view, I'm coming into this looking at this a little bit skeptical.
Q. If it makes things easier for you, the summary printout from the computer is on the last pages and you can turn to that if you would like?
A. You are asking me to interpret a document and I'm going --
Q. I'm asking questions about it, you can take all the time you want.
THE COURT: Let's go off the record. Let's take a break and,

Page 1346

Dr. Wigand, you can also take a break, but you can also continue.
THE VIDEOGRAPHER: Going off the record. The time is approximately 10:00 a.m.
(Recess taken.)
THE VIDEOGRAPHER: Going on the record. The time is approximately 10:24.
BY MR. SHEFFLER:
Q. Now, sir, you have reviewed pages from a lab notebook; have you not?
A. I have reviewed some pages, yeah, I have reviewed most of the pages, yes.
Q. This was a study done as you pointed out in April, after you had left the company, in 1994?
A. Yes.
Q. After you were fired. Now, turn to the computer printout, if you would, sir.
A. Which page?
Q. Well, let's start with the second page from the end.

Page 1347

A. Second page from the end.
Q. This is a computer printout that lists the mean value for smoke pH at the third portion of that printout there; do you see that?
A. Yes.
Q. Do you see where CPCL and -- was added in various percentages to a cigarette blend; do you see that?
A. I'm taking your word for it, yes, go ahead.
Q. Do you see that they had -- as you know from reviewing the notes, there were three densities of cigarettes tested in this test. There was a low density cigarette, a regular density cigarette, and a high density cigarette; do you see that?
A. Yes.
Q. Let's look at the regular density cigarette, sir.
A. I guess before I get into the data, I would like to understand the experimental design. I would like to

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by Legacy Industry Documents Library - http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1348

understand who did the experiment. I mean, if we are going to have a technical review of this research -- I would like to know who did the work, when it was done, what the purpose behind it.
Q. Okay. Rana Shehadeh did the work. It was done on April 24, 1994. It was done at Brown & Williamson laboratory. Now, sir, if you turn --
A. How do I know that from this?
Q. I gave you the cover --
A. I assume this and this are one document?
Q. You can assume that, sir. Now, sir --
A. Is this on a commercial blend or is this on an experimental blend?
Q. This was on a blend manufactured consisting of Burley, flue-cured, Oriental, and Macon extruded tobacco. And the experimental design is at page one, two, three, four, five of the notebook. Do you see that, sir?
A. This is on a commercial or an

Page 1349

experimental blend?
Q. Well, sir, I think that probably is a trade secret. But I can tell you for now why don't you just assume that it's on an experimental cigarette. That way we don't have to get into whether it's a trade secret or not?
A. So this is a hypothetical cigarette?
Q. No, sir, it's an experimental cigarette?
A. Okay. Experimental.
Q. It's an experimental cigarette that was -- experiments -- the types of cigarettes that were experimented on throughout your tenure at B & W. Okay? Experimental cigarette, got it? Now, Burley, flue-cured, Oriental, and Macon extruded tobacco --
A. Y-1 you mean?
Q. Macon extruded tobacco.
A. Is that what it says, Y-1 MET? I just want to make sure I understand.
Q. You are on the wrong, sir. Turn

Page 1350

with me, sir.
A. No. I would like to go through the experimental --
Q. Would you turn with me, sir?
A. No. I would like to go through the --
THE COURT: Answer his questions, please. Turn to the page he is directing you to.
Q. One, two, three, four. Now, do you see, sir, for the four cigarette types tested here, one was Burley in the blend, flue-cured in the blend, Oriental in the blend, Macon extruded in the blend, and CPCL in the blend. Okay?
A. And I'm asking you is that MET that's mentioned there the same as the Y-1 MET mentioned the page before?
Q. Would it make a difference in terms of smoke pH?
A. I don't know. I'm trying to understand.
Q. Assume it is.
A. Okay.

Page 1351

Q. Assume whatever you want to assume for the purpose -- because it makes no difference. Let's say that the experimental cigarette is as it says, Burley, flue-cured, Oriental, Macon extruded, and CPCL.
Now, there was one type where thread no CPCL added. No ammonia chemistry tobacco added. Do you see that?
A. So blend XLF number 1 has no ammonia chemistry in it whatsoever?
Q. Isn't that what it says, sir?
A. Okay. There is no ammonia, there is no additives, there is no DAP in the Burley casing.
Q. Sir, answer my question. Is there any CPCL in the first column?
A. CPCL is not the only way of introducing ammonia.
Q. Sir, I know that. You told us that, we are going to get to that. We are just concentrating right now on your claim that as you add ammoniated reconstituted tobacco to a cigarette blend the pH will

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Generated by Legacy Industry Documents Library - https://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1352

go up. That's what I want to address in these questions.
A. On one experiment. Okay.
Q That's right, sir. This is the data we have. This is the only data Brown & Williamson had. There was no data at Brown & Williamson that looked at this issue while you were there, was there?
A. Then I don't understand some of the conclusions in the Leaf Blenders manual then.
Q. I don't understand some of the conclusions that Mr. Wigand came to and blurted out on CBS. And that's why we are looking at the data and the proof to see if there is any basis for them. Do you understand that?
A. Let's take this in conjunction with the claims made and what is in the Leaf Blenders manual.
Q. Sir.
A. Okay. We'll go through this.
Q. Was there any test, was there any test data on what the results of

Page 1353

inclusion of reconstituted ammoniated tobacco versus non-blends, non-recon blends in the Leaf Blenders manual; was there any data, sir?
A. No, there was no data in the Leaf Blenders --
Q. Was there any data, sir?
A. In the Leaf Blenders manual?
Q. Yes.
A. As I know it and remember it, no.
Q. Then we have the only data in front of us, don't we?
A. I'm not sure of that but go ahead. We will take this data as your, at face value.
Q. CPCL included at zero percent, 24 percent, at 16 percent, and at eight percent, right?
A. Okay.
Q. Then those cigarettes were tested; were they not?
A. Can I understand the formulation of the CPCLs? What is ammonia content,

Page 1354

use of DAP, what's the ammonia content of these various CPCLs?
Q Sir, the ammonia content of the various CPCLs is the same for all four types?
A. It's the same. And what level is it?
Q. Does it matter, sir? If you are comparing to see what the increase in CPCL would have on the Ph, would it matter as long as it was the same amount?
A. Well, I think you would have to know what the total amount of ammonia donors are in the CPCL, particularly if you look at Ph shifts. But we'll go ahead and we will take your suppositions.
Q. It's no supposition, sir, they changed the amount of CPCL. They looked at a cigarette -- you told us --
A. We are having a scientific discussion here and we are going through data, are we not?
Q. We are not having a scientific discussion, sir, I'm asking questions.

Page 1355

A. Okay.
Q. Isn't it true that you told us and testified under oath today that if your theory was correct, if you took a cigarette without ammoniated recon and added ammoniated recon, such as CPCL, to it, the Ph would go up. That was your theory, that's your supposition, that's the prime basis for your claim on 60 Minutes, and if it's false you are wrong?
A. Let's go on.
Q. Isn't that true?
A. No. But let's go on.
Q. Isn't that what you testified to?
A. No. Let's go on. Let's look at the data here and the information here.
Q. Look at page -- one, two from the end.
A. Um-hum.
Q. CPCL at zero percent in a cigarette. In other words, a cigarette without any reconstituted tobacco treated with ammonia had a level of pH of 6.74.
A. So you are saying with zero

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Generated by Legacy Industry Documents Library - ucsf.edu/docs/ytfl0001

Page 1356

percent CPCL regular density, that there is absolutely no ammonia additives other than what would have been added through CPCL, is that correct?
Q. Sir, my question was simply this, whether there was ammoniated or not -- okay. Let's assume there was ammoniated. Let's assume there were ammoniated casings. Okay?
A. Okay.
Q. Now, in a cigarette without ammoniated treated CPCL, all right, it had 6.74 pH. Do you see that, sir?
A. Um-hum.
Q. Now, you take that same cigarette blend, all right? The same cigarette blend and you add eight percent.
A. Um-hum.
Q. All right. Regular density. Okay?
A. Um-hum.
Q. And then you compare and you see it goes up slightly, less than -- I'm sorry, it goes down slightly. Do you see

Page 1357

that, sir, from 6.74 to 6.66?
A. Um-hum.
Q. All right. So we are adding the ammoniated recon to the same cigarette that didn't have ammoniated recon and the pH goes down, doesn't it?
A. Um-hum.
Q. Now, that's at zero to eight percent?
A. How many measurements of pH were made here?
Q. Four?
A. Four, okay.
Q. Look at zero --
A. Was the instrument calibrated before use?
Q. Of course.
A. Okay.
Q. Look at --
A. These are just questions I would ask if someone was bringing me a notebook to read and interpret.
Q. Okay, sir. Look at the difference that happened when you included

Page 1358

16 percent of ammoniated recon. Now you told us basically ammoniated recon was included in cigarettes used at, manufactured during the time you were there, at about 15 percent or thereabouts, plus or minus.
At 16 percent the pH is 6.5; do you see that sir?
A. I can see the data, yes.
Q. So it went down from 6.74, at eight percent it goes down to 6.6, at 16 percent it goes down to 6.5. At 24 percent, it goes down even further, 6.4; doesn't it?
A. Um-hum. That's what's data says here.
Q. Under your hypothesis the exact opposite should be occurring; isn't that true?
A. This is one set of data. They created it in 1994.
Q. And you had no data when you went on 60 Minutes to make the claim that the pH went up when you added ammonia

Page 1359

technology, did you?
A. Well -- did I have any data?
Q. Yes.
A. I had plenty of information --
Q. You had no data when you went on 60 Minutes; did you?
A. Does this data suggest -- I didn't have any Brown & Williamson data, no, I did not.
MR. SHEFFLER: Would you mark that, please.

- - - - -

Thereupon, Wigand Exhibit No. 60 was marked for purposes of identification.

- - - - -

THE COURT: Wigand 60.
Q. Now -- are we back on the record? I have handed you what is marked as Exhibit Number 60. And we have graphed the four points of this experiment. Do you see that, sir?
A. Um-hum.
Q. The effect of increasing CPCL on

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Sponsored by the Industry Documents Library: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1360

smoke pH. Do you see that, sir?
A. Yes.
Q. At zero a cigarette without any CPCL, a cigarette without ammoniated treated reconstituted tobacco, there is 6.7, almost 6.75. Which is what this reflects, 6.74; right?
A. Yes.
Q. With eight percent CPCL it goes down to 6.6325, which is shown in the graph; right?
A. Um-hum.
Q. With 16 percent CPCL it goes down even further, does it not, 6.5?
A. That's what this data suggests as generated yesterday or the day before.
Q. And at 24 percent it goes down to 6.4, does it not?
A. Yes.
Q. Sir, is it not correct that as you add ammoniated technology, treated reconstituted CPCL, the pH does not go down as Jeffrey Wigand suggested, or does not go up as Jeffrey Wigand suggested. It

Page 1361

goes down, doesn't it?
A. No. This experiment may suggest that. I would like to see more data.
Q. You want to see the experiment done again?
A. I would like to see more data. I would like to see data from, in the 1988 -- or 1989 to that 1993 data.
Q. Because why, sir? Did the cigarettes change?
A. They may have. I don't know.
Q. Did you see any data at Brown & Williamson while you were there that was done on an experiment where they tested to see if ammoniated treated reconstituted tobacco actually did what Jeffrey Wigand claimed it did?
A. Yes, I have seen data.
Q. You have not seen any data done, sir. Okay. Identify the data.
A. Let's go to the Leaf Blenders manual, we can discuss it.
MR. SHEFFLER: Let's go off the record, your Honor.

Page 1362

THE COURT: Off the record.
THE VIDEOGRAPHER: Going off the video. The time is approximately 10:37.
MR. SHEFFLER: Let's stay on the transcript.
- - - - -
(Reporter's note: At this point, the testimony resumes in the Confidential and Sealed volume of the transcript.)

Page 1370

THE VIDEOGRAPHER: Back on the video. The time is approximately 10:54.
BY MR. SHEFFLER:
Q. Now, Mr. Wigand, we have marked as Exhibit Number 60 a graph that reflects that as you add ammoniated technology to cigarettes the pH goes down, contrary to what you have believed prior to today. And we have also established, sir, that there is nothing that you can refer to in the Leaf Blenders handbook that contradicts Exhibit Number 60. Have we not?
A. I believe you have.
Q. So, sir, isn't it correct that when you went on 60 Minutes and told Mike Wallace that the use of ammonia chemistry allows for nicotine to be more rapidly absorbed in the lungs, and, therefore, affect the brain and central nervous system, the first, the first premise for that proposition has been disproved; has it not?
A. No. All you have –

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1371

Q. Sir, you have told us that pH goes up when you add ammonia technology into cigarettes.
A. Yes.
Q. We have shown you, sir, the data from Brown & Williamson's own Research Department that demonstrates it goes down. You have not been able to establish that there is anything that you have relied upon except supposition and surmise to the contrary; isn't that true?
A. No. What you have showed me today is only a piece of data that says, the effect of increasing CPCL on smoke pH. You have not shown me data that says, that increasing ammonia compounds or ammonia-generating compounds increases pH.
All you have shown me is one component that CPCL may, in this one limited experiment, affect pH differently.
Q. Let's talk about this for a second. First of all, in this experiment that was done on four different levels, three different types of cigarettes, over

Page 1372

400 cigarettes were tested, doesn't it show, sir, that as you add ammoniated reconstituted tobacco, CPCL, the pH goes in the exact opposite way that you thought it did?
A. This is one experiment. I'm not going to draw that conclusion.
Q. You didn't draw your conclusion, when you stated on CBS, on any experiment. You just made a conclusion. You had no data.
A. And this --
Q. I have an infinite amount more data than you do.
A. Can I see it, please?
Q. It's right there, Number 60. That is more data than you had when you got up on 60 Minutes and made your wild claim to the nation. Is it not?
A. No.
Q. You had no data, sir.
A. I had general knowledge and understanding.
Q. You had no data, sir.

Page 1373

A. This data does not dispute --
Q. You had no data, sir; isn't that correct?
A. This data does not disprove what I have said.
Q. When you got up on 60 Minutes you had no data, did you, sir?
A. Did I have data with me on 60 Minutes? No, I did not have data on 60 Minutes. No, I did not.
Q. You did not have data to rely upon when you got up at 60 Minutes and made your claim?
A. I had information.
Q. Sir, you had no data. You had no study. You had no comparative study to rely upon when you got up and stated that if you use ammonia chemistry the pH will go up. In fact, it goes the opposite way, isn't that true?
A. You are mixing apples and oranges here, sir.
Q. We are talking about pH. We are talking about smoke pH. It either goes

Page 1374

up, it goes down, or it remains the same. Your claim is that it goes up. We have shown you data that suggests it goes down.
A. You have not.
Q. And you have no data to disprove it.
A. You have not shown me data --
Q. I've shown you data. It's Number 59.
A. You have shown me one piece of data.
Q. It's Number 59 as well, sir. We've gone through the computer printout.
A. That's one experiment. I'm not willing to base any conclusion on one experiment.
Q. You are willing to base conclusions on no experiments, though, aren't you, when it serves your interest?
A. No, I'm not.
Q. You did not base your conclusion on any experiment when you got up on 60 Minutes. You had no experimental data when you got up on 60 Minutes.

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by Legacy Industry Documents Library - http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1375

MR. ALDOCK: I object, your Honor, to the supposition that the pH itself, which he is talking about, was in the 60 Minutes. They talked about ammonia chemistry but they didn't say what he is saying of the in 60 Minutes.

MR. SHEFFLER: Your Honor, on 60 Minutes they said that ammonia chemistry was responsible for the rapid absorption of nicotine into the lung. Wigand's testified today that that's due to two things: One, increase in pH of smoke due to ammonia; and, two, the fact that when nicotine is changed to a base, because of increase in pH it's more rapidly absorbed.

He is wrong. I have a right to contend on both counts. We are only addressing the first one now. If he is wrong on the first one, what he said on 60 Minutes is wrong. If he is wrong on second one, what he said on 60 Minutes is wrong. If he is wrong on both, he is doubly wrong.

Page 1376

In any case, your Honor, I have the right to show that he is wrong on smoke increasing pH and, therefore, the claim that's based upon that is also wrong, and was wrongfully made at the time.

THE COURT: I'm not sure, Mr. Aldock, what your objection is.

MR. ALDOCK: It's when he uses -- when he characterizes the 60 Minutes as taking in his subparts, he can argue that his subparts equal the conclusion.

MR. SHEFFLER: No, no. He has testified to that.

MR. ALDOCK: You can argue that.

MR. SHEFFLER: He's testified to that.

MR. ALDOCK: But you can't say that's what was said on 60 Minutes. That's my only point. The pH word was not used on 60 Minutes.

MR. SHEFFLER: Your Honor, if I say --

MR. ALDOCK: Just the form of the

Page 1377

question.

MR. SHEFFLER: If I say the sum of the parts is X, a.. I don't identify each part, but the parts that I am referring to are wrong, then X is wrong. This man testified the sum of his conclusion on 60 Minutes was based on two things. If one of those two --

THE COURT: I understand.

MR. SHEFFLER: I'm sorry.

THE COURT: Mr. Aldock, I'm overruling your objection. He is permitted to ask him what was the basis of his theory. And he asked him that. And then, if I understand the testimony correctly, he said, where did you get that theory that the pH will increase? He said out of the Leaf Growers manual.

Then Mr. Sheffler said, find it in the Leaf Blenders manual for me. Dr. Wigand now says, I cannot find anything in the Leaf Blenders manual that contradicts the experiment run by Brown & Williamson in 1994, labeled Wigand Exhibit

Page 1378

59 and Wigand 60.

So do we need to beat the dead horse anymore? I mean, If he is relying on that as his authority and he says I can't find it in there -- I'm not to draw conclusions. I'm to answer objections and your objection is overruled. It's been asked and answered.

MR. SHEFFLER: We will move on, your Honor.

Q. Now, sir, let's turn to the second proposition. There were two propositions that had to be true.

THE COURT: I'm sorry. Actually, to carry this a step further, I think, Mr. Wigand, if I understood your testimony correctly, you said you relied upon two things, the Leaf Blenders manual, and studies made by Brown & Williamson while you were there.

THE WITNESS: Well, yes.

THE COURT: Would you then concede that if Brown & Williamson has no studies, showing what you say, that the pH

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1379

increases, while you were there; would you then concede what you said you were relying upon does not exist?

THE WITNESS: If he can show me that there was data at Brown and Williamson during my time there that shows smoke pH doesn't go up, I will retract that statement.

If you can't show that to me I'm not going --

MR. SHEFFLER: Your Honor, we showed him data after the fact. If he is claiming that there was data there before this while he was there, that he is relying upon, if he can identify it for us, fine.

We have searched. The only thing we found -- if I had it, while he was there, obviously I would have used it. The only thing we could find is --

THE COURT: The reason I ask is because, as my understanding is, is that Judge Mershon said no document discovery until after this depo. So they are sort

Page 1380

of empty-handed. So I asked a hypothetical that when they do get their opportunity for document exchange and if Brown & Williamson produces none, he has now *conceded* that --

MR. SHEFFLER: There is none. He has no basis.

THE WITNESS: I think there are a number of documents that were produced in production. One was a B.A.T. document that looked at the effect of pH in reconstituted tobacco. I believe you have that.

Q. I don't know what you are talking about.

A. I think you have a document that was produced in production that looks at --

THE COURT: Well, that's for the future. Right now --

Q. Are you relying upon that document for your testimony, and for your statement on 60 Minutes?

A. I'm relying on all the

Page 1381

information I have acquired

THE COURT: Are you saying you have already gotten that document that shows that? Do you have it in your possession?

THE WITNESS: I have turned over to Brown & Williamson documents that I had.

THE COURT: Well, you certainly kept a copy of the documents before you turned them over.

MR. SHEFFLER: Your Honor, we can get his production and go through every single piece of it. There is not a piece of evidence, your Honor, there is not any data that he's turned over that suggests that the pH --

THE COURT: I can't -- I can't make a finding on that right now. That's not my role. He has already conceded that if it doesn't exist, and he has conceded it's not in this manual, the Leaf Blenders manual, and he says he will retract the statement if there is no such study made

Page 1382

during his tenure there.

Q. Is that correct, Mr. Wigand?

A. If you can show me data that smoke pH does not go up with ammonia --

Q. No, no, no, no. That's -- we did that.

A. You have not done that.

Q. We have shown you data. Smoke pH does not go up with ammonia, it goes down. That's what 59 and 60 is.

A. No, you haven't.

Q. It looks like it goes from here. Show that up on the screen again.

A. It shows the effect of increasing CPCL on smoke pH.

Q. And what happens?

A. CPCL, it goes down. Show me the effect of smoke pH on the effect of ammonia. Do you have that chart?

Q. Isn't CPCL, as you told us before, ammoniated --

A. It is one form of ammoniated compound. One form of ammoniated additive. One form of ammoniated

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1383

1 additive.
2 Q. And with that it goes down,
3 doesn't it?
4 A. Only in this set of data. I
5 don't know --
6 Q. Okay. How about looking at
7 the -- you want to look at the other, the
8 other ammoniated reconstituted tobacco
9 juice?
10 A. Show me a chart or graph that
11 has either been created today or during my
12 tenure that reflects the effect of
13 increasing ammonia --
14 THE COURT: Dr. Wigand, you are
15 asking the questions. The question is the
16 other way around. Can you point to a
17 document that supports your theory? You
18 have named so far the Leaf Blenders
19 manual. Now you say you're --
20 THE WITNESS: No. I'm saying
21 that I can take the Leaf Blenders manual
22 in conjunction with the reverse
23 engineering in the Marlboro report, in
24 conjunction with discussions in ammonia

Page 1384

1 technology conferences during my tenure at
2 B & W, literature before B & W, during B &
3 W, after B & W.
4 THE COURT: Dr. Wigand, name the
5 literature is the question on the floor.
6 You have named this manual. And now you
7 say no that manual does not --
8 THE WITNESS: What I cannot
9 show in this manual, sir, is a correlation
10 that it's exactly as what they have shown
11 here.
12 MR. SHEFFLER: I didn't ask for
13 exact. I asked him to show me in the
14 manual where it says if you add increasing
15 amounts of ammoniated recon the pH goes
16 up. He hasn't been able to do that. And
17 now he's -- your Honor, throughout this
18 deposition --
19 THE COURT: I think he has
20 answered the question that what he sees in
21 the manual does not contradict Exhibit 59
22 and 60.
23 MR. SHEFFLER: The problem I
24 have, your Honor, is this, Mr. Wigand has

Page 1385

1 made these claims, I am entitled to
2 investigate the basis for them. I have
3 shown him evidence that contradicts his
4 claim. Then he quibbles with it.
5 But then when I ask him what is
6 the basis, does he have any piece of data
7 at all, he says, well, it's my general
8 understanding, I went to conferences, I
9 talked to people, I have read literature
10 for my whole life, I'm a scientist, it's
11 my --
12 How can I examine him? Your
13 Honor, you can't make claims as a
14 scientist and then simply retreat and say,
15 well, yeah, maybe the studies don't show
16 it but I think blah, blah, blah. I have a
17 right to have him identify what data
18 was --
19 THE COURT: Hasn't that been
20 done? He's named this as -- the manual
21 and now he says, no, the manual doesn't
22 contradict.
23 MR. SHEFFLER: But he is -- now
24 he is saying he's going on to all this

Page 1386

1 general knowledge that --
2 MR. ALDOCK: He named the
3 manual, the conferences, and the reverse
4 engineering of Marlboro. We haven't had
5 discovery.
6 MR. SHEFFLER: Reverse
7 engineering of Marlboro was a four-year
8 project and thousands of data was
9 generated. Are you claiming, sir, that
10 there is data -- and let me ask the
11 question this way. Are you claiming there
12 is data in that project, Project Best,
13 that was the name of it; right?
14 A. Project Adverb.
15 Q. Okay.
16 A. And Best.
17 Q. All right. Project Adverb and
18 Project Best. Are you claiming, sir, that
19 there is data that shows that if you
20 increasingly add ammoniated-treated
21 reconstituted tobacco to a cigarette the
22 pH will go up? Yes or no.
23 A. I will qualify it.
24 Q. No, no, no, no. Can you answer

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Digitized by the Legacy Industry Documents Library - http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1387

the question yes or no? Then you can qualify and explain away and do whatever you want. But can you answer it yes or no?
A. There was data generated that showed that as you increase the ammonia, not only through reconstituted tobacco but through other additives, smoke pH goes up.
Q. Let me ask the question again. Are you testifying here today that you were relying upon data that was generated in Project Adverb and Project Best that demonstrated that as you add ammoniated-treated reconstituted tobacco to a cigarette, the pH goes up? Yes or no?
A. Yes.
Q. Okay. And if that data does not exist, Jeffrey Wigand will retract publicly what he said on 60 Minutes?
A. No. I think there is a lot more that has to go in there. There is more than just reconstituted tobacco. I keep on saying that. Let's look at the total

Page 1388

effect of increasing ammonia-producing compounds on the effect of smoke pH.
Q. Okay.
A. Let's look at that.
Q. All right. Can I ask you this, sir? Will you concede that one of the ways of changing the pH, Jeffrey Wigand thought happened before today, was adding ammoniated recon to tobacco?
A. That is part of it.
Q. Will you concede, sir, that you have no basis for that conclusion?
A. Solely based on this data? There is some suggestion, yes.
Q. Sir –
A. That increasing CPCL – I don't know what the concentration of ammonia is in here. I don't know what –
Q. CPCL, do you know what the – you knew what the concentration was when you worked there?
A. What is the – how much DAP is in the CPCL?
Q. Sir, that is a trade secret as

Page 1389

you know. You can check it in the manual. It was in the manual.
A. Oh, is it?
Q. You know it was in the manual.
A. Is it in the manual? What's in this CP – are we comparing apples to apples here?
Q. It's CPCL.
A. But CPCL can have different concentration of ammonia hydroxide and DAP.
Q. Sir, does it matter in the study since it was the same CPCL all four times?
A. What is the ammonia concentration in that CPCL?
Q. Seven percent, 20 percent, 60 percent, 80 percent. It still went down every time you added more of it.
A. Was there any ammoniated casings?
Q. Sir, I told you to assume there was ammoniated casings used in all four cigarettes.
A. What this data suggests is totally contrary to what was in the Leaf

Page 1390

Blenders manual.
Q. You haven't shown us that. There was no data in Leaf Blenders manual you said. Don't keep bringing up the Leaf Blenders manual and making references to it when you've already testified it doesn't apply.
A. Let's also go to the reverse engineering of Marlboro. Let's get the whole package and let's –
Q. I don't have all those documents here, sir. But you have testified, have you not, that you were relying upon that for the support?
A. I'm relying upon this Leaf Blenders manual. I'm also –
Q. Sir, how can you rely upon that Leaf Blenders manual when you testified it's not in it?
THE COURT: Dr. Wigand, have you not already conceded the manual does not contradict Exhibit 59 and Exhibit 60?
THE WITNESS: Based on this limited data, I could say that, but I

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1391

would have to look at it further, your Honor.
Q. You had no problem getting up on 60 Minutes and saying that ammoniated chemistry produces rapid absorption of nicotine through the lungs and, therefore, transfers to the brain and the CNS. You had no trouble getting up and saying that, did you?
A. Ammoniated –
Q. When was that testimony, sir? When was that statement made? It's not testimony. It was a statement made publicly to the nation. When did you make it?
A. On or about August 3rd, 1995.
Q. You had no trouble saying it at that time; did you?
A. I still don't have a problem saying it.
Q. But you have no data to support it, isn't that irresponsible? Would you go out here today and tell the American public that as you add reconstituted

Page 1392

ammoniated tobacco to cigarettes you increase the level of the pH in smoke and, therefore, increase the nicotine absorption in the lung? Would you tell that to the American public today?
A. Based on what I have seen here today, I would have to look at more data for one; and two, I probably – no, I would like to see more data.
Q. Okay, sir.
A. I could not tell people that by increasing CPCL has an effect on smoke pH as represented in this one piece of data constructed in 1994.
Q. As represented in Exhibit 59 it was not just CPCL, it was all of the different recons used at Brown & Williamson.
A. Well, I can't tell from this.
Q. All right, sir. Mr. Wigand, will you concede this: That the only basis that you have for your claim that using ammoniated technology and increasing amounts of ammoniated recon will increase

Page 1393

smoke pH and thereby increase the absorption into the lungs of nicotine?
The only basis for that is something you saw on Project Adverb or Project Best. Will you agree with that?
A. As well as other information I received during ammonia conferences, looking at data from B.A.T.
Q. If we were to show you, sir, that there was never anything done in Project Adverb or Project Best that showed that as you increase ammoniated tobacco into a cigarette the pH went up; if we could show you that data didn't exist, would you then retract your statement, sir?
A. No.
Q. Sir, isn't it true you wouldn't retract your statement whether this experiment, if done a thousand times, came to the same results, a million times and came to the same results; you are not going to retract your statement because you made it without any basis in fact in

Page 1394

the first place and you are just simply not going to say, I retract my statement?
A. I am not retracting my statement, it still holds true.
Q. Thank you.
A. Thank you. And you haven't it proved otherwise to me by what you have given me today.
Q. I don't think, Mr. Wigand, that the proof and the truth would prove a thing to you.
Sir, if I showed you a study done at Brown & Williamson that demonstrated that ammonia, as used on casings, in increasing amounts did not change the pH of the smoke and, therefore – in a increasing fashion; would you agree, sir, that your opinion that you rendered on 60 Minutes was flawed?
A. If you can show me that data, constructed during my period at Brown & Williamson, then I may or may not agree. If you showed me that data afterwards, I

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Searchable http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1395

wasn't privileged to that data after I left Brown & Williamson.

THE COURT: Can we approach it this way? Dr. Wigand, as a scientist, and from a layperson's point of view, scientists are permitted to have theories.

THE WITNESS: They sure are.

THE COURT: Okay. If a scientist has a theory, and that theory is later disproved, should not the scientist then be willing to accept that they made a mistake, in other words, and not go forward with the theory?

THE WITNESS: I think that's --

THE COURT: Isn't that rather basic in science?

THE WITNESS: That's basic in science. Once the data has been shown, it's reproducible, consistent, I believe scientific opinions have changed from time to time based on new data.

I have not seen any new data here today, sir, that would change my opinion.

Page 1396

THE COURT: He wasn't asking you that. He's asking you if he -- well, I will let him ask the questions.

Q. I'm asking you, sir, if when you made these wild claims you had any data to support them. And you told us you had data, you thought, was in the Project Best and Project Adverb. And I'm simply asking you, sir, if the data isn't in there, and the only data that we have is here, would you agree you are wrong?

A. Is this the only data we have?

Q. The only data we have right now is right there.

A. In 1994?

Q. No, sir, there is a world's worth of data on a world's worth of topics. We are talking about a specific one. We are talking about the increasing addition of ammoniated recon which you claim changes the pH in a upward fashion, and which we have shown you changes the pH in a downward fashion. That's what we have been talking about all morning.

Page 1397

A. You haven't proved to me.

Q. I know I haven't proved to you, I know that, sir.

A. What you have proved to me and what you have shown me is by increasing CPCL in an artifactual environment you have increased pH.

Q. All right. Let's talk about that for a couple seconds. Increasing CPCL. They choose more than just CPCL, and I can take you to it if you want. They used other ammoniated tobaccos, didn't they?

A. In that study?

Q. You read it.

A. Okay. So what is the effect?

Q. Is it not the same effect for all of the different ammoniated tobaccos?

A. I mean, this is a study done in 1994.

Q. I understand, sir. But it is data, and as a scientist you should take data into consideration. Not your general surmises, not your theories and your

Page 1398

desire to bash B & W, but data. That's data. You have none.

I have got one, you've zero; isn't that right?

A. No.

Q. You haven't identified it.

A. You have than one piece of data.

Q. And you have nothing.

A. And that's not enough to change my opinion, I'm sorry.

Q. I understand, but you don't have any data.

A. Well, give me more some more data.

Q. I'm not going to give it to you. I didn't go on 60 Minutes and make these wild claims, you did. You made them without data.

A. No, I did not. I made it on information.

Q. You made it on information, but not data. Not scientific study.

A. I won't agree to that.

Q. But it's true.

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by Legacy Industry Documents Library - http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1399

A. No, it's not.
Q. Even though you won't agree to it, it's true.
A. No, it's not true.
Q. And you can't identify it, can you?
A. No, it's not true, Mr. Sheffler.
Q. Then identify it.
A. Get the Worldwide Best report out, get the reconstituted studies on pH of smoke, and we will look at it.
Q. Sir, you should have looked at it before you got on 60 minutes?
A. I would be more than happy to.
Q. You should have looked at it before you got on 60 Minutes; don't you think? Don't you think you should have looked at it before you got on 60 Minutes?
A. Data is, information is reduced from data. And the information I have, and still believe, as you change the level of ammonia in smoke --
Q. Can you answer my question? Don't you think you should have looked at

Page 1400

the data before you got on 60 Minutes?
A. Looked at more data? I think --
Q. Looked at any data that showed what happens when you increase ammoniated recon into a cigarette and what happens to the pH. Don't you think you should have looked at that?
A. I looked at data and information of looking at total ammonia compounds.
Q. Did you tell Mr. Wallace, when you met with him and before your interview with him, did you tell him that you were relying upon scientific studies or data for your conclusion about the increased pH with the use of ammoniated technology? Did you tell him that?
A. Yes.
Q. Did you tell him what studies they were?
A. There was a host of studies out there.
Q. Name one.
A. I'm not prepared today to give you those studies.

Page 1401

Q. Oh, sir.
A. I mean, I didn't come here for a scientific presentation.
Q. Sir, you had nine months to prepare for this deposition. You knew this deposition was going to go on nine months ago. Nine months ago we tried to take this deposition. Now you suddenly say I'm unprepared.
You had weeks to prepare with counsel from Washington. You had numerous meetings with them. Unprepared?
A. I am unprepared today --
Q. Were you unprepared to go on 60 Minutes and answer Mr. Wallace's questions? Were you unprepared?
A. No, I was not.
Q. Okay, sir. That was back in 1995. Not even a year ago. And you are telling us that you had studies then but you can't recall them now; you don't know where they were.
A. I didn't have studies done. I reviewed the literature.

Page 1402

Q. Studies, you reviewed the literature. Tell me what literature did you review? Was it in JAMA that said as you add reconstituted tobacco the pH goes up?
A. You keep on focusing on adding only reconstituted tobacco.
Q. Ammonia chemistry, sir?
A. As you increase ammonia chemistry and the use of ammonia donating chemicals you increase pH.
Q. Isn't that one of the things that happens when you add more and more ammoniated-treated recon? Mr. Wigand, most of the cigarettes sold at the time you were at B & W that used ammonia chemistry used ammoniated recon. That's the way they used ammonia chemistry; right?
A. That was one form that was used, yes.
Q. And isn't it true, sir, if your supposition would have any validity, as you increased the ammonia chemistry, you

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1403

should increase the pH?
A. Um-hum.
Q. And that doesn't happen?
A. By this sample set of data, no.
Q. You don't have any data
contradict it.
A. At this time I do not have the
data, but clearly will have the data.
Q. Now, sir, let us go on to the
second supposition. You have handled the
first. I want to go to the second.
A. I don't think you have handled
the first, but go ahead.
Q. That's why we have a transcript,
sir, so whoever is going to be looking at
this they can see the whole discourse and
what you are basing your conclusions on.
Now, I would like to address the
second proposition. There were two.
A. Before you go on to the next
one, I would like to take a break.
Q. Sure.
THE VIDEOGRAPHER: Going off the
record. The time is approximately 11:21.

Page 1404

(Recess taken.)
THE VIDEOGRAPHER: Going on the
record, the time is approximately 11:32.
BY MR. SHEFFLER:
Q. Now, sir, the second proposition
for your claim that ammonia chemistry
allows nicotine to be more rapidly
absorbed in the lungs is your supposition
that nicotine form determines whether it
will be rapidly absorbed or not in the
lung. We have established that, have we
not?
A. We have established that the
form of nicotine – I think we have got
some understanding of it, yes.
Q. Okay, sir.
A. And that it needs to be the free
base, not the conjugate.
Q. When you say the free base, not
the salt; right?
A. Yes.
Q. So the form of nicotine
determines in Dr. Wigand's view whether or
not it will be rapidly absorbed in the

Page 1405

lung; correct?
A. As well as many, many other
scientists in this world.
Q. Many, many. We are going to get
to that. But that was the second thing
that had to be true for your claim to be
correct on CBS, right? And if that was
false, your claim would be false; correct?
A. By that logic, I would assume,
yes.
Q. Okay, sir. Before you got up on
60 Minutes and told the world that was
watching that show that the form of
nicotine is a determinant in whether or
not it will be more rapidly absorbed in
the lungs, did you look at the literature?
A. Yes, I did.
Q. You reviewed the literature?
A. Some of the literature I
reviewed, I didn't review all the
literature.
Q. Who did you review?
A. Two names that come to mind,
Henningfield, Benowitz, others.

Page 1406

Q. The only two you can recall are
Henningfield and Benowitz?
A. Those are the two leading
worldwide experts on nicotine.
MR. SHEFFLER: Okay, sir. Mark
that, please.
- - - - -
Thereupon, Wigand Deposition Exhibit
No. 61 was marked for purposes of
identification.
- - - - -
BY MR. SHEFFLER:
Q. Sir, I would like to hand you
now an article that was written by Dr.
Benowitz, the person you claim is it the
expert or one of the experts, one of the
two experts, you relied upon for that
claim that nicotine is absorbed more
rapidly in the lung because of its smoke
pH.
MR. ALDOCK: I don't think that
was what he said.
Q. Sir, didn't you say that the
form of the nicotine governed how rapidly

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1407

the nicotine was absorbed in the lung, didn't you say that?
A. The form of nicotine clearly has a direct relationship between membrane permeation and absorption in the lung, yes.
Q. And didn't you also tell us, sir, that nicotine is a salt unless the pH is raised to change it to a free base or a base in free form?
THE COURT: A salt in nature.
Q. In nature.
A. In nature, I think I may have said that, I also can tell you too that only L nicotine works versus D nicotine.
Q. My question is, didn't you tell us that the smoke pH was important in changing the form of the nicotine so it could be rapidly absorbed?
A. Yes. I think, that is a good conclusion.
Q. Sir, isn't it true that when tobacco smoke reaches the lung the nicotine is absorbed rapidly regardless of

Page 1408

the smoke pH?
A. I'm sorry, one more time again.
Q. When the smoke reaches the lung because of the lung blood buffering barrier, or buffering capacity, the blood's buffering capacity, the smoke is absorbed and nicotine is absorbed rapidly regardless of the pH in the smoke, isn't that true?
A. When nicotine is in the correct form.
Q. Sir, regardless of the pH, you just told us before, that the pH, right, changed the form of the nicotine so it could be absorbed more rapidly, but it doesn't matter what the pH of the smoke is, does it, it's all absorbed rapidly, isn't it?
A. I don't know the answer to that question, but go ahead, let's explore.
Q. Sir, if you don't know the answer to that question, how did you get up on 60 Minutes and claim that ammonia chemistry allowed nicotine to be absorbed

Page 1409

more rapidly?
You told us ammonia chemistry changes the pH of the smoke?
A. That's correct.
Q. And you told us that that changes the nicotine into a base?
A. Yes.
Q. And you told us that that allows it to be absorbed more rapidly.
A. Um-hum.
Q. But if it doesn't matter what the pH is of the tobacco, if nicotine is absorbed rapidly into the lung, regardless of the pH, you would be wrong?
A. What you just said was incorrect.
Q. Would you please read his comment back? What you just said was incorrect.
MR. SHEFFLER: Read my question back, sir.
(The record was read by the reporter.)
Q. Sir, I'm sorry. Regardless of the pH of the tobacco smoke, if nicotine is absorbed rapidly into the lung,

Page 1410

regardless of the pH of the tobacco smoke, would you agree what you said was wrong?
A. No.
Q. Why not?
A. Because all of the effect of smoke pH is to change from nicotine from an inactive form to an active form.
Q. Sir, isn't it true that the pH is of the smoke, we are talking pH of the smoke; right?
A. Um-hum.
Q. If the pH of the smoke, as I understand Jeffrey Wigand's claim, the pH of tobacco smoke raises and allows the nicotine to change, right?
A. Yes.
Q. And according – that was what we talked about for most of the morning?
A. Yes, we did.
Q. What we are talking about now is your claim that because of that nicotine is more rapidly absorbed in the lung, that's the claim we are addressing now; right?

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1411

A. We are addressing the claim if you change the pH of the smoke you change the structure of nicotine, and when you change the structure of nicotine as a result of pH you change the ability for nicotine to be absorbed more rapidly, that's what we are talking about.
Q. That's what we are talking about, the absorption now. Look at page 1321 and the article by Neil Benowitz that you purportedly rely upon.
A. Wait a minute. I did not say that.
Q. I thought you said relied upon Neil Benowitz and his literature?
A. I did not rely totally on one single article.
THE COURT: Did you not list him as one on which you relied upon is what he is asking.
A. One of. This is one article from Neil Benowitz published in 1988.
Q. That's same year you were hired at B & W. Look at the absorption of

Page 1412

nicotine from tobacco on page 1321.
A. Um-hum.
Q. Look at the first paragraph.
A. Um-hum.
Q. Nicotine is distilled from burning tobacco. Do you see that?
A. Um-hum.
Q. Look at the second paragraph. When tobacco smoke --
A. You have to be a little slower, I want to read what we are reading here.
Q. Read it, sir.
A. I will.
THE COURT: Have you seen this article before, doctor?
THE WITNESS: Yes, I remember reading this article as well as other articles.
Q. You remember reading this article before you got on 60 Minutes?
A. No, I remember reading this article.
Q. Do you remember reading it before you got on 60 Minutes?

Page 1413

A. I may or may not, I read a lot.
Q. Did you tell Mike Wallace that when tobacco smoke reaches the small airways and alveoli of the lung the nicotine is absorbed rapidly regardless of the pH of the smoke?
A. Did I tell that to Mike Wallace? I don't think I did.
Q. I don't think you did either, but that's a direct quote from Neil Benowitz, isn't it?
A. This is one quote, this is one excerpt out of this article and one article.
Q. Sir, it was a quote from Neil Benowitz who you claim was one of the two world experts you relied upon. That's what you just testified to, just a few minutes ago, this is one of them, Neil Benowitz.
A. What it says is tobacco -- it says the pH of smoke tobacco as found in most cigarettes is acidic, pH 5.5, at this point pH the nicotine primarily ionized,

Page 1414

it's a salt. It's a salt. Inactive it says, inactive it says, okay?
Q. Keep reading.
A. "In this state it does not cross cell membranes rapidly."
Q. Keep reading.
A. I'm going to stop at that quote.
Q. No, no, no, consequently, there is little buccal, buccal, b-u-c-c-a-l, what is buccal?
A. I don't know, what is it?
Q. You don't know?
A. I have to think about it. Wait a minute, what is buccal?
Q. Buccal absorption, sir, what is buccal absorption?
A. I have to think about it.
Q. Think all the time you want, do you want a medical dictionary?
A. Do you have one?
Q. Sir, you know buccal membranes are.
A. Why do you try to insult my intelligence by asking --

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1415

Q Because I asked you a question. What does buccal mean?
A Buccal means through the mouth. Through the mucous membranes of the mouth.
Thank you.
Q. We are talking about mucous membranes of the mouth; are we not?
A Did I pass your test?
Q You didn't pass my test, no. Are we not?
A. Yes, go ahead.
Q. Keep reading. When we get down to where it talks about absorption in the lung, what does it say, read that sentence, sir.
A. It says the pH of smoke from --
Q Go down to absorption --
A. Let's stay with all of it.
Q. Read the whole thing, start from the beginning and read the whole thing.
A. Consequently, there is little buccal absorption of nicotine from cigarette smoke even when held in the mouth. We are not talking about the

Page 1416

lungs, yet we haven't got there.
THE COURT: Slow down.
Q. That's right. Go ahead.
A. Which is reference number 62. Let's see who is reference 62.
Q. Did you look at the reference 62 when you read this article?
A. This is Gory and Benowitz, okay.
Q. Keep reading.
A. "The pH of smoke of air cured tobaccos such as those found in pipe cigars and a few European -- is alkaline pH 8.8, and the nicotine is primary unionized. Smoke from such products is well absorbed through the mouth."
Q. Okay.
A. "When smoke reaches the small airways of the alveoli of the lung," that's way way down, the farthest most point anatomically in the lungs, okay?
Q. Very good.
A. The nicotine is absorbed rapidly regardless of pH of the smoke.
Q. Yes. Now, do you concede that

Page 1417

Neil Benowitz said when tobacco smoke reaches the small airways and alveoli of the lung that nicotine is absorbed rapidly regardless of the pH of the smoke, do you agree with that?
A. I'll agree with that, that's a reasonable statement.
Q. Then, sir, what your claim for was on 60 Minutes was wrong?
A. No.
Q. Yes, it was, sir.
A. No, no, no. I'm sorry.
Q. So, isn't what Mr. Benowitz is saying here, Dr. Benowitz, is that nicotine is absorbed, and he is a medical doctor, isn't he, sir?
A. I believe so.
Q. He is a clinical pharmacologist as well?
A. I understand that, yes.
Q. He has an M.D. and a Ph.D.?
A. I think so.
Q. Otherwise, he wouldn't call him a clinical pharmacologist?

Page 1418

A. There are people called clinical pharmacologists that have Ph.D. degrees.
Q. He would have to have a degree to call himself a clinical pharmacologist, hold himself out as such?
A. He may or may not, I don't know.
Q. Sir, you wouldn't call yourself a clinical pharmacologist?
A. No, I would not call myself a clinical pharmacologist at all, no.
Q. Because you don't have a Ph.D. in clinical pharmacology, right?
A. That's correct.
Q. And you wouldn't hold yourself out as a medical doctor, would you?
A. I'm not holding myself out as a medical doctor, no.
Q. Have you in the past?
A. No.
Q. Have you ever in the past?
A. No.
Q. Sir, isn't it true that when nicotine vapor in the smoke phase is inhaled into the lungs, even the ionized,

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1419

the acidic nicotine smoke, is rapidly absorbed because in the alveolar part of the lung, the capillary bed will absorb the smoke nicotine over a wide range of values of pH, isn't that true?
A. That's what this article says, sir.
Q. I'm not referring to the article, is my statement true?
A. Let me try it. Do it slowly.
MR. SHEFFLER: Read it to him again.
(The question was read by the reporter.)
A. I'm not sure.
Q. But you got up on 60 Minutes and said that it was ammonia chemistry that caused the rapid absorption of nicotine in the lung?
A. What I said, yes, it's still correct --
Q. Wait a minute, sir, you told us at the beginning of the day that there were two propositions for that to be

Page 1420

correct, one we dealt with. I'm talking about this one. You said for you to be correct, nicotine was rapidly absorbed in its base form but not in its acidic form, that's what you said to me earlier today. If that is wrong, you said you are wrong. That's what you told me earlier, isn't it?
A. Okay, let's continue.
Q. Well, if you don't know whether nicotine is absorbed over a wide range of pH, if you don't know that nicotine is absorbed rapidly in its acidic form, your statement is wrong?
A. No. Is nicotine in its acidic form absorbed just as rapidly as nicotine in its free base form? Is it? I don't think this article suggests that.
Q. It says it doesn't matter what form because it says the pH of tobacco smoke doesn't matter at all.
A. But if it's already in the free base form there is no acidic form --
Q. Sir, if -- put this article aside, if it could be shown to you from an

Page 1421

expert for whom you have some regard, that nicotine is rapidly absorbed in its acidic form, would you agree that you were wrong?
A. If you could show me kinetic data.
Q. No, no, no, sir, I'm asking you, you said you relied upon a review of the literature, you named a couple of people. I am simply saying to you sir, if I showed you people who said the opposite, of what Jeffrey Wigand concluded from this supposed review, people who said that nicotine in its acidic form is rapidly absorbed in the lung, would you not agree that you are wrong?
A. No.
Q. Sir, if I could show to you that everybody in the world but you, everybody in the world said nicotine is absorbed rapidly in the lung regardless of whether it's acidic or basic, would you agree you were wrong?
A. If everybody in the world, I would probably change my opinion.

Page 1422

However --
Q. Probably?
A. I would probably change my opinion. However, everybody in the world says smoking is hazardous to your health and you keep on believing it's good for you, you keep on believing nicotine is not addictive. And you keep on saying it's like chewing gum and chocolate, come on guys, we are going to have a difference of opinion.
MR. SHEFFLER: I move to strike.
THE COURT: Sustained.
Q. Mr. Wigand, I'm not asking about your opinion here as much as I am asking about the basis for your claims made on CBS 60 Minutes, okay?
I am going to show you, I have showed you one document that says, by Neil Benowitz, that says nicotine or tobacco smoke reaches the small airways and alveoli of the lung the nicotine is absorbed rapidly regardless of the pH?
A. That's what this article says,

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf
Generated by Legacy Industry Documents Library - https://www.industrydocuments.ucsf.edu/docs/ytfl0001

Page 1423

but it says a lot more.
Q. I'm going to show you another article by Jack Henningfield? He was the other guy you recommended, remember?
A. You are showing me 1988 data, do you have any 1993 data? How about the FDA's jurisdictional report.
Q. I have 1993 data by Jack Henningfield, is that good enough?
A. Let's look at it.
THE COURT: Have it marked.

- - - - -

Thereupon, Wigand Deposition Exhibit No. 62 was marked for purposes of identification.

- - - - -

A. Do you believe everything that's in this article? Am I supposed to take everything in this article --
THE COURT: Dr. Wigand, answer the questions, don't ask the questions, please.
Q. It says in this 1993 article by Jack Henningfield on page 25; see the top

Page 1424

column, right-hand side?
A. Um-hum.
Q. After cigarette smoking, nicotine is rapidly absorbed from the lung where the pH rises to 7.4 in the surface area is large. Smokers absorb up to 90 percent of the nicotine in mainstream cigarette smoke. Do you see that, sir?
A. Um-hum. Yes.
Q. Because of the lung surface area being large, and because of the blood buffering capacities to buffer pH to 7.4, it doesn't matter what the ionization of the nicotine is. It's going to be rapidly absorbed; is it not?
A. Well, it's sure different than the pH of smoke, because the pH of smoke is what? 6-2, 6-3?
Q. And pH of blood is 7.4; is it not?
A. And what's the pH of smoke with ammonia?
Q. Well, is it -- well, let me see. According to this CPCL study it depends on

Page 1425

how much ammonia technology you add. If you add a lot of ammonia, it's a lot less than if you add none. Isn't it? Isn't it?
THE COURT: Slow down.
Q. Isn't it?
A. Well, I look at smoke pH here of 7.8 with a hundred percent CPCL and now --
Q. That's a hundred percent. There has never been a manufactured cigarette on the market until the world of a hundred percent reconstituted tobacco.
A. Okay. Well, I want to take this as reference point, okay?
Q. Sir, a hundred percent CPCL is not a manufacturable cigarette and sellable cigarette, is it?
A. Fine. Let's just do a calculation. pH at 7.8 is equal to a hundred percent. Now we are going to go to 24 percent, is now at 6.4, roughly, 42?
Q. So what? You are comparing something in one document of an unreal cigarette, that nobody ever manufactured a

Page 1426

cigarette for sale, at hundred percent CPCL.
A. What it shows is when you use a hundred percent CPCL, you have a pH of 7.8. It seems to me strange --
Q. Sir, has anybody ever manufactured and sold a cigarette of hundred percent ammoniated reconstituted tobacco?
A. I don't know yet. Have they? I don't know the answer to that.
Q. Oh, sir.
A. All I can say is I think there is some issues here --
Q. All right, sir.
A. If I look at pH of 7.8 at a hundred percent, and I look at pH of 6.4. At three-quarters of it, I think I have some suspect in terms, suspicions in terms of the data.
Q. Okay, sir. I'm sure you have a lot of suspect suspicions, but let us deal with the evidence. The evidence is on absorption. It doesn't matter whether

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

Page 1427

it's acidic or not. It's going to be rapidly absorbed because of the considerable area for absorption in the capillary bed; isn't that true?
A. I don't think so. Would you like to take a drink? You're sounding hoarse.
Q. I'm sorry. Did you not understand my question?
A. Yeah, I understand your question.
Q. Okay. Can you answer it?
A. The effect of pH is to scavenge nicotine.
Q. No, sir. I'm not going to do this anymore with you. Every time I move to another subject you want to go to a subject we covered?
A. I want to keep the continuum going.
Q. Then let us talk about absorption of nicotine in the lung. The second basis for your wild claim on CBS. Is it not true that regardless, regardless

Page 1428

of whether nicotine is acidic or basic, it's rapidly absorbed in the lung because of the large bed of capillaries?
A. That is partially true.
Q. Partially? What part isn't?
A. Well, when it gets there it's already in the free-base form when you use ammonia chemistry.
Q. Even if it's acidic it's rapidly absorbed in the lung?
A. It doesn't matter. It facilitates the extraction of nicotine out of the blend. It delivers to the lung more nicotine.
Q. Sir, even when it's acidic, it's rapidly absorbed in the lung, right?
THE COURT: Is that what this literature says?
THE WITNESS: This is what one statement, sir, says out of this piece of literature.
Q. We have got two statements.
A. This statement also says, that this article --

Page 1429

THE COURT: Isn't this the statement, the authority that you were relying upon a while ago? These are the two that you named; are they not?
THE WITNESS: These are two documents, okay? And also these documents say that nicotine is addictive, nicotine is --
MR. SHEFFLER: Your Honor, I strike that.
THE COURT: Sustained.
MR. SHEFFLER: He has got to answer my questions sometime.
THE COURT: We are at stopping point. The tape is about to run.
THE VIDEOGRAPHER: Going off the record. The time is approximately 11:56.
(Recess taken.)
- - - - -
Thereupon, the deposition was adjourned at 11:56 a.m.
- - - - -

Page 1430

CERTIFICATE

I, Thomas F. Runfola, a Registered Professional Reporter, do hereby certify that I reported the deposition of Jeffrey S. Wigand, and that the foregoing transcript of such proceedings is a full, true and correct transcript of my stenotypy notes made to the best of my ability.

I do further certify that I was called there in the capacity of a Court Reporter, and am not otherwise interested in this proceeding.

THOMAS F. RUNFOLA,
Registered Professional Reporter

DEANNA S. CURTIN,
Registered Professional Reporter
Notary Public for the State of Kentucky.
My Commission Expires: _____

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf Generated by UCSF Industry Documents Library http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

-'-

'94 [1] 1280:3

-1-

1 [1] 1351:10
10012 [3] 1276:11
1056 [1] 1277:12
10:00 [1] 1346:4
10:24 [1] 1346:8
10:37 [1] 1362:4
10:54 [1] 1370:2
11:21 [1] 1403:24
11:32 [1] 1404:3
11:56 [2] 1429:17,21
1279 [1] 1278:4
1321 [2] 1411:10 1412:1
1332 [1] 1278:8
1336 [1] 1278:9
1359 [1] 1278:10
1400 [1] 1277:7
1406 [1] 1278:11
1423 [1] 1278:12
15 [1] 1358:5
1540 [1] 1276:14
16 [5] 1353:18 1358:1,7 1358:11 1360:13
1800 [1] 1277:1
19 [1] 1275:19
191 [1] 1276:6
1988 [3] 1361:8 1411:22 1423:5
1989 [1] 1361:8
1992 [2] 1335:23 1336:2
1993 [5] 1335:21 1361:8 1423:6,8,23
1994 [12] 1333:4 1335:2 1335:6,12,19 1346:17 1348:7 1358:21 1377:24 1392:14 1396:15 1397:20
1995 [2] 1391:16 1401:19
1996 [4] 1275:19 1335:20 1335:22 1337:23

-2-

20 [1] 1389:16
20035 [1] 1277:8
20036 [1] 1277:2
21st [1] 1333:4
24 [3] 1348:7 1353:18 1358:12 1360:17 1425:21
2400 [1] 1289:14
25 [2] 1337:10 1423:24
2500 [2] 1275:17 1276:3
2600 [1] 1277:11

-3-

30 [1] 1276:10
30303 [1] 1276:7
31298 [1] 1277:12
3rd [1] 1391:16

-4-

400 [3] 1276:15,19 1372:1
401 [1] 1276:2
40202 [3] 1276:3,16,20
42 [1] 1425:21
4th [1] 1279:12

-5-

5-15-1996 [1] 1337:23
5.5 [1] 1413:23
58 [3] 1278:8 1332:20,22
59 [11] 1278:9 1336:11,15 1336:22 1374:9,12 1378:1 1382:10 1384:21 1390:22 1392:15

-6-

6-2 [1] 1424:18
6-3 [1] 1424:18
6.4 [4] 1358:13 1360:18 1425:21 1426:17
6.5 [3] 1358:7,12 1360:14
6.6 [2] 1358:11
6.6325 [1] 1360:10
6.66 [1] 1357:1
6.7 [2] 1360:6
6.74 [5] 1355:23 1356:13 1357:1 1358:10 1360:7
6.75 [1] 1360:6
60 [61] 1278:10 1279:12 1281:8 1292:8,10 1304:5 1307:6 1308:17,18 1313:21 1317:16 1325:18 1335:15 1355:9 1358:23 1359:6,13,17,20 1370:5 1370:12,16 1372:16,18 1373:6,8,9,12 1374:22,24 1375:4,6,8,20,22 1376:10 1376:19,21 1377:7 1378:1 1380:23 1382:10 1384:22 1387:20 1389:16 1390:22 1391:4 1394:19 1398:16 1399:13,16,18 1400:1 1401:14 1405:12 1408:23 1412:20,24 1417:9 1419:16 1422:17
61 [2] 1278:11 1406:9
62 [5] 1278:12 1416:4,5,6 1423:14

-7-

7.4 [3] 1424:5,12,19
7.8 [4] 1425:8,19 1426:5 1426:16
710 [1] 1276:19

-8-

8.8 [1] 1416:13
80 [1] 1389:17

-9-

9 [2] 1275:23 1281:14
90 [1] 1424:6
95-CI-06560 [1] 1275:7
9:00 [2] 1275:20 1279:6
9:14 [1] 1294:4
9:18 [1] 1304:2
9:34 [1] 1320:24
9:36 [1] 1325:3

-A-

a.m [4] 1275:20 1279:6 1346:5 1429:21
abbreviation [1] 1341:20
abbreviations [1] 1341:3
ability [2] 1411:5 1430:8
able [4] 1339:11 1341:21 1371:8 1384:16
absolutely [1] 1356:2
absolutes [1] 1329:17
absorb [2] 1419:3 1424:6
absorbed [51] 1292:3,14 1304:9 1305:6 1308:21 1309:21 1312:2,8 1314:1 1315:9 1317:17 1370:19 1375:16 1404:8,10,24 1405:15 1406:18 1407:1 1407:19,24 1408:7,7,15 1408:17,24 1409:9,13,24 1410:22 1411:6 1413:5 1416:15,22 1417:3,15 1419:2 1420:3,10,12,15 1421:2,14,19 1422:23 1424:4,15 1427:2 1428:2 1428:10,16
absorption [**] 1283:8 1283:12,13,14 1304:14 1304:16,18,20,23 1305:12 1305:23 1306:16,19 1307:3,13 1308:12 1309:16 1311:13 1312:15 1313:3,7 1317:24 1318:2 1326:6 1375:10 1391:5 1392:4 1393:2 1407:5 1411:9,24 1414:15,16 1415:13,17,22 1419:18 1426:24 1427:3,22
accept [1] 1395:11
accomplish [1] 1305:11
accomplished [1] 1285:14
according [9] 1279:11 1287:15,19 1288:4 1292:20,24 1309:23 1410:17 1424:24
acetaldehyde [5] 1312:10,12,19 1328:7,14
acid [1] 1328:8
acidic [13] 1413:23 1419:1 1420:4,12,14,22 1421:2,13,21 1427:1 1428:1,9,15
acidity [1] 1283:18
acids [6] 1328:5,14,20,22 1329:15,24
acquired [1] 1381:1
active [13] 1282:10,22 1285:22 1288:14,17,19 1306:13,15 1309:4,6,11 1309:12 1410:7
activity [2] 1285:10,11
add [20] 1279:21 1280:6 1307:8 1315:19 1328:22 1351:23 1356:17 1360:21 1370:6 1371:2 1372:2 1384:14 1386:20 1387:13 1391:24 1402:4,13 1425:1 1425:2,3
added [9] 1283:5 1329:20 1347:8 1351:8,9 1355:6 1356:3 1358:24 1389:18
addictive [2] 1422:8 1429:7
adding [6] 1279:15 1328:12 1332:11 1357:3 1388:8 1402:6
addition [2] 1331:10 1396:20
additional [2] 1311:2 1313:5
additive [2] 1382:24 1383:1
additives [9] 1279:17 1282:8,12,13,17 1351:14 1356:2 1387:8
address [5] 1282:24 1308:9 1318:4,6,8 1325:18 1352:1 1403:18
addressing [3] 1375:19 1410:23 1411:1
adjourned [1] 1429:21
adjust [2] 1282:7 1283:6
adjusted [1] 1281:10
adjusts [3] 1279:14 1281:18 1282:2
Adverb [6] 1386:14,17 1387:12 1393:4,11 1396:8
adverse [9] 1289:24 1290:7,11,15,18,20,20 1291:10
affect [16] 1292:15 1304:10,14,16,23 1305:7 1311:13 1314:2 1370:20 1371:20
affects [3] 1304:20 1307:4 1317:23
afterwards [1] 1394:24
again [16] 1291:15 1306:10,11 1308:4 1312:4 1313:23 1320:6 1325:17 1327:17 1330:20,22 1361:5 1382:13 1387:9 1408:2 1419:12
ago [6] 1311:12 1401:7,7 1401:19 1413:19 1429:3
agree [21] 1284:1 1289:24 1290:7,14 1314:12,24 1315:2,13,24 1393:5 1394:16,23 1396:11 1398:23 1399:2 1410:2 1417:5,6 1421:3,14,21
agreed [1] 1329:16
ahead [10] 1289:10 1306:7 1338:19 1347:11 1353:15 1354:15 1403:13 1408:20 1415:11 1416:3
air [1] 1416:10
airways [4] 1413:4 1416:18 1417:2 1422:21
Aldock [15] 1277:2 1310:15 1337:10 1339:6 1343:17,22 1375:1 1376:8 1376:9,15,18,24 1377:11 1386:2 1406:21
ALK [2] 1342:22 1343:13
alkaline [1] 1416:12
alkaloid [1] 1340:24
alkaloids [9] 1342:21,22 1343:3,3,5,7,9,10,11
allow [1] 1306:18
allowed [1] 1408:24
allowing [1] 1310:12
allows [16] 1292:2,13 1304:8 1305:5 1306:16 1306:24 1307:3 1308:20 1309:16 1311:19 1312:1 1313:24 1370:18 1404:7 1409:8 1410:14
almost [1] 1360:6
alone [1] 1330:5
alveolar [1] 1419:2
alveoli [4] 1413:4 1416:18 1417:2 1422:22
American [2] 1391:23 1392:5
amine [1] 1307:11
amines [1] 1307:12
ammonia [147] 1279:18 1282:14,16,16 1283:7,18 1283:21,23,24 1284:3,7,8 1284:13,17,18 1285:14 1285:15 1286:4 1288:3 1289:2,5,9,13,14,15,20 1290:2,2,5,9,12,16 1291:8 1291:12,17,23 1292:11 1292:21 1293:1,4,9,12,16 1304:7 1305:4,10,21 1306:18,24 1307:13,21 1308:1,11,19 1309:1 1310:5,11 1311:3 1312:9 1312:12,21,24 1313:5,24 1314:6,10,14 1315:16,18 1315:19 1316:8,11,14,16 1316:21 1317:9 1318:18 1318:24 1319:5,13,15,21 1320:2,7 1325:11,13,15 1325:19 1326:1,6,7,13,18 1326:23 1329:11,22 1331:10 1335:15 1336:2 1336:3 1340:4 1341:9 1351:8,11,14,19 1353:24 1354:1,3,13 1355:23 1356:2 1358:24 1370:17 1371:2,16 1373:18 1375:4 1375:8,13 1382:4,9,19 1383:13,24 1387:6

562630323

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Generated by unknown from industrydocuments.ucsf.edu/docs/ytfl0001

1388:17 1389:10,14 1393:7 1394:14 1399:22 1400:9 1402:8,9,10,16,18 1402:24 1404:6 1408:23 1409:2 1419:17 1424:22 1425:1,2 1428:8

ammonia-generating [1] 1371:17

ammonia-producing [1] 1388:1

ammoniated [43] 1318:12 1319:4 1325:8 1330:14 1351:23 1353:1 1355:5,6 1356:6,8,9,12 1357:4,5 1358:1,2 1360:4 1360:21 1361:15 1370:6 1372:2 1382:21,22,23,24 1383:8 1384:15 1388:9 1389:19,21 1391:4,10 1392:1,23,24 1393:12 1396:20 1397:12,18 1400:4,15 1402:17 1426:8

ammoniated-treated [3] 1386:20 1387:14 1402:14

among [1] 1328:5

amount [7] 1291:18 1318:11 1326:8 1354:11 1354:13,18 1372:13

amounts [4] 1318:10 1384:15 1392:24 1394:15

analyzed [1] 1342:13

anatomically [1] 1416:20

answer [23] 1289:17,23 1290:24 1291:2 1293:7 1312:5,16,19 1332:1 1343:20 1350:7 1351:16 1378:6 1386:24 1387:3 1399:23 1401:15 1408:19 1408:22 1423:20 1426:11 1427:12 1429:13

answered [2] 1378:8 1384:20

anticipating [1] 1339:23

APPEARANCES [1] 1276:1

apples [3] 1373:21 1389:6,7

Appleton [2] 1277:13 1342:2

apply [1] 1390:7

approach [1] 1395:3

April [3] 1333:4 1346:16 1348:7

area [3] 1424:6,10 1427:3

argue [2] 1376:11,15

article [21] 1406:14 1411:10,17,21 1412:15 1412:17,20,22 1413:13 1413:14 1416:7 1419:6,9 1420:17,23 1422:24 1423:3,18,19,23 1428:24

articles [1] 1412:18

artifactual [1] 1397:6

artificially [2] 1279:15 1279:21

aside [1] 1420:24

aspect [1] 1285:22

assessment [1] 1313:9

associated [4] 1290:1 1290:12,16 1291:11

assume [12] 1334:11 1337:3 1348:12,14 1349:4 1350:23 1351:1,2 1356:7 1356:8 1389:20 1405:9

Atlanta [1] 1276:7

attached [2] 1337:7 1345:2

attributable [2] 1329:22 1329:24

August [1] 1391:16

authority [2] 1378:4 1429:2

available [1] 1282:20

Avenue [3] 1276:2 1277:1,7

aware [5] 1280:10 1289:1 1289:4,5,8

away [1] 1387:2

-B-

B [29] 1278:6 1279:13,21 1280:6,12,16 1281:9 1282:2 1291:9 1314:15 1326:5 1327:4 1330:18 1330:24 1331:15,17 1332:10 1335:11 1337:1 1342:3 1344:10 1349:16 1384:2,2,2,3 1398:1 1402:16 1411:24

b-u-c-c-a-l [1] 1414:9

B.A.T [5] 1330:19 1331:17,18 1380:10 1393:8

barrier [1] 1408:5

base [36] 1286:5,20,22 1293:13 1304:19 1305:20 1306:14 1307:2,16,23 1308:15 1309:13,15 1310:4,13,19 1311:5 1312:1 1374:15,17,21 1375:14 1404:18,19 1407:9,10 1409:6 1420:4 1420:16,22

base-free [1] 1317:18

based [8] 1339:14 1345:11 1376:4 1377:7 1388:13 1390:23 1392:6 1395:21

bases [1] 1308:23

bash [1] 1398:1

basic [4] 1395:16,17 1421:21 1428:1

basing [1] 1403:17

basis [17] 1291:24 1292:1 1308:16,22,24 1352:16 1355:9 1377:13 1380:7 1385:2,6 1388:12 1392:22 1393:3,24 1422:16 1427:23

basisity [1] 1282:18

beat [1] 1378:2

bed [3] 1419:3 1427:4 1428:3

beginning [3] 1415:20 1419:23

behalf [2] 1276:17 1277:4

behind [1] 1348:5

believing [2] 1422:6,7

Benowitz [14] 1405:24 1406:2,15 1411:10,15,22 1413:11,16,20 1416:8 1417:1,13,14 1422:20

best [9] 1386:12,16,18 1387:12 1393:5,11 1396:7 1399:9 1430:8

between [1] 1407:4

biological [2] 1285:10 1289:19

bit [2] 1339:12 1345:14

blah [3] 1385:16,16,16

blend [32] 1293:17 1311:9 1319:1,8,24 1320:10 1326:8 1327:14 1327:21 1327:1,2 1329:3 1330:8,13,15 1331:1,2 1347:9 1348:16,17,18 1349:1 1350:12,13,14,14 1350:15 1351:10,24 1356:16,17 1428:13

Blenders [22] 1292:5 1293:14,23 1317:1 1352:10,20 1353:3,6,8 1361:21 1370:11 1377:20 1377:22 1378:18 1381:22 1383:18,21 1390:1,3,5,16 1390:18

blends [4] 1319:10 1329:21 1336:6 1353:3

blood [3] 1408:4 1424:11 1424:19

blood's [1] 1408:6

blurted [1] 1352:14

bodily [1] 1289:16

body [1] 1289:6

book [1] 1332:5

books [1] 1331:24

bound [4] 1287:17 1288:20 1292:22 1311:18

Box [1] 1277:12

brain [7] 1292:15 1304:10 1305:7 1307:4 1314:2 1370:20 1391:7

brands [2] 1280:16 1282:3

break [4] 1282:23 1345:24 1346:1 1403:21

bringing [2] 1357:21 1390:4

broadcast [1] 1279:12

broader [2] 1290:22 1325:14

broadest [1] 1310:21

Brown [37] 1275:4,18 1276:3 1277:10 1280:11 1280:22,24 1281:17 1282:5 1316:24 1317:9 1319:9 1320:15 1325:6 1326:21 1330:11 1333:10 1334:5 1338:9,24 1340:7 1348:8 1352:5,7 1359:8 1361:12 1371:6 1377:23 1378:19,23 1379:5 1380:4 1381:7 1392:17 1394:13 1394:22 1395:2

Bruce [1] 1276:12

buccal [10] 1414:9,9,10 1414:14,15,16,21 1415:2 1415:3,22

buffer [1] 1424:12

buffering [4] 1408:4,5,6 1424:12

Burley [7] 1326:15 1327:2 1348:19 1349:18 1350:12 1351:5,15

burn [1] 1328:13

burning [1] 1412:6

by-product [1] 1289:7

by-products [1] 1328:6

-C-

C [1] 1276:8

calculation [1] 1425:19

calibrated [1] 1357:15

cannot [2] 1377:21 1384:8

capacities [1] 1424:12

capacity [3] 1408:5,6 1430:10

capillaries [1] 1428:3

capillary [2] 1419:3 1427:4

carry [2] 1334:18 1378:15

case [3] 1275:7 1329:2 1376:1

cases [1] 1284:12

casing [3] 1326:14 1327:2 1351:15

casings [5] 1326:24 1356:9 1389:19,21 1394:15

caused [1] 1419:18

CBS [15] 1305:4 1308:5 1309:19 1313:2 1315:14 1326:5 1332:14 1338:12 1339:22 1340:3 1352:14 1372:9 1405:7 1422:17 1427:23

cell [1] 1414:5

cells [1] 1311:16

center [4] 1276:15 1333:13,16,19

central [6] 1292:15 1304:10 1305:7 1307:5 1314:3 1370:20

certain [3] 1292:8,10 1334:8

certainly [2] 1280:4 1381:9

CERTIFICATE [1] 1430:1

certified [1] 1279:3

certify [2] 1430:3,9

Chadbourne [1] 1276:10

change [34] 1282:17,18 1282:19 1285:13 1293:1 1293:12 1305:13 1307:1 1307:12,12,13 1309:2 1310:11,13,18,18 1315:10 1315:21 1316:1 1319:6 1361:10 1394:16 1395:23 1398:9 1399:21 1407:9 1410:6,15 1411:2,2,4,5 1421:24 1422:3

changed [5] 1340:4 1354:18 1375:14 1395:20 1408:14

changes [13] 1283:17 1291:17 1292:21 1305:24 1307:14,22 1309:1,3 1314:10 1396:21,22 1409:3,6

changing [16] 1293:9 1304:18 1305:13,20 1306:4,11 1307:23 1308:13,14 1311:4,24 1313:7 1314:6 1318:15 1388:7 1407:18

characterizes [1] 1376:10

charge [1] 1344:11

chart [2] 1382:19 1383:10

check [1] 1389:1

chemical [5] 1279:17 1334:14,22 1341:6 1342:23

chemicals [3] 1325:10 1325:15 1402:11

chemistry [73] 1283:24 1284:9,14,17,19 1285:14 1286:5 1288:3 1290:3,9 1290:17 1291:8,17,23 1292:21 1304:8 1305:5 1306:18,24 1307:14,22 1308:2,20 1309:1 1310:5 1310:11 1311:3 1312:9 1312:13 1313:1,6,24 1314:6,10,15 1315:20 1316:9,11,14,17,21 1318:12,18 1325:8,13,20 1326:2,7,14,23 1335:16 1336:2,3 1340:4,24 1342:10 1351:9,11 1370:17 1373:18 1375:5 1375:9 1391:5 1402:8,10 1402:17,18,24 1404:6 1408:24 1409:2 1419:17 1428:8

chewing [1] 1422:9

chief [1] 1338:7

chocolate [1] 1422:9

choose [1] 1397:10

cigarette [61] 1280:13 1283:6 1290:17 1291:18 1304:22,24 1315:3,20 1316:10,12 1317:10 1318:13,16,20 1319:1,7 1320:10 1326:9 1327:15

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Generated by Legacy Industry Documents ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

1327:20 1329:20 1330:8 1331:14 1332:12 1335:16 1347:9,16,16,17,21 1349:5,9,11,13,17 1350:11 1351:4,24 1354:19 1355:5,21,21 1356:11,16,17 1357:4 1360:3,4 1386:21 1387:15 1393:13 1400:5 1415:23 1424:3,8 1425:11,16,17 1425:24 1426:1,7

cigarettes [35] 1279:22 1280:7,13,17,20,22 1282:3 1289:13 1290:3,9 1291:7 1319:9,10,20,24 1320:14 1326:20 1334:15 1334:16,18,23 1335:1 1347:14 1349:15 1353:21 1358:3 1361:10 1370:7 1371:3,24 1372:1 1389:22 1392:1 1402:15 1413:23

cigars [1] 1416:12

CIRCUIT [1] 1275:1

citrate [1] 1285:9

.laim [60] 1287:1,24 1283:3 1292:18,19 1305:3 1305:8 1306:18 1307:6 1308:5,9,10,11,16 1309:19 1310:3 1313:1 1313:21,22 1314:11 1315:14,15 1316:5 1317:12,15,15 1318:14 1319:3 1325:18 1326:4 1332:13,14 1335:14,17 1338:12 1340:5,5 1351:22 1355:9 1358:23 1372:19 1373:13 1374:2 1376:4 1385:4 1392:22 1396:21 1404:6 1405:6,8 1406:15 1406:18 1408:23 1410:13 1410:21,23 1411:1 1413:16 1417:8 1427:23

claimed [5] 1290:10 1291:20 1340:3 1344:15 1361:17

claiming [7] 1291:16,24 1292:1 1379:13 1386:9 1386:11,18

claims [9] 1292:8 1338:11 1340:2 1352:19 1385:1,13 1396:5 1398:17 1422:16

clarification [1] 1307:9

clear [1] 1291:16

clearly [3] 1293:15 1403:8 1407:3

clinical [7] 1417:18,24 1418:1,4,8,10,12

CNS [1] 1391:7

co-factor [1] 1312:11

column [2] 1351:17 1424:1

coming [2] 1290:6 1345:13

comma [1] 1340:24

comment [2] 1339:8 1409:17

commercial [3] 1319:24 1348:16,24

Commission [1] 1430:21

Commissioner [1] 1275:13

common [4] 1327:3,6,7 1327:8

commonly [1] 1285:18

company [3] 1339:16 1342:2 1346:17

comparative [1] 1373:16

compare [2] 1332:11 1356:22

compared [3] 1316:12 1330:12,24

comparing [3] 1354:9 1389:6 1425:22

compensated [1] 1329:8

complete [2] 1331:14 1337:14

component [3] 1293:17 1311:9 1371:19

compound [1] 1382:23

compounds [5] 1319:5 1371:16,17 1388:2 1400:9

computer [6] 1337:7,11 1345:17 1346:20 1347:2 1374:13

concede [6] 1378:23 1379:2 1388:6,11 1392:21 1416:24

conceded [4] 1380:5 1381:20,21 1390:21

concentrate [1] 1305:3

concentrating [1] 1351:22

concentration [5] 1328:19 1388:17,20 1389:10,15

concentrations [1] 1328:3

concluded [1] 1421:11

conclusion [10] 1372:7 1372:8,10 1374:15,21 1376:12 1377:7 1388:12 1400:14 1407:21

conclusions [3] 1352:10 1352:13 1374:18 1378:6 1403:17

conditions [1] 1336:6

conferences [4] 1384:1 1385:8 1386:3 1393:7

confidential [4] 1294:9 1320:17 1321:3 1362:10

confining [1] 1312:22

confusion [1] 1338:2

conjugate [1] 1404:18

conjugated [1] 1289:11

conjunction [3] 1352:18 1383:22,24

consequences [2] 1290:8,15

consequently [2] 1414:8 1415:21

considerable [1] 1427:3

consideration [1] 1397:23

considered [1] 1311:20

consistent [1] 1395:19

consisting [1] 1348:19

constructed [2] 1392:14 1394:22

consumers [3] 1280:18 1280:19,21

consumers' [1] 1281:2

contemporary [1] 1338:23

contend [1] 1375:18

content [3] 1353:24 1354:1,3

context [3] 1286:24 1287:11 1288:22

continue [2] 1346:2 1420:8

continuum [1] 1427:19

contradict [4] 1384:21 1385:22 1390:22 1403:6

contradictory [4] 1316:16,20,22 1317:4

contradicts [3] 1370:12 1377:23 1385:3

contrary [4] 1339:16 1370:7 1371:11 1389:24

converted [1] 1311:19

converts [1] 1285:15

copies [1] 1336:23

copy [3] 1336:21 1338:3 1381:10

Corporation [3] 1275:5 1277:11 1333:11

correct [38] 1280:23 1282:15 1286:9 1293:2 1309:7 1310:14,20 1313:17,22 1314:12 1315:1 1317:12,15 1320:1 1320:11 1326:2,7,10 1328:3,21,22 1335:18 1355:4 1356:4 1360:20 1370:15 1373:3 1382:2 1405:1,7,8 1408:10 1409:4 1418:13 1419:21 1420:1,3 1430:6

correctly [2] 1377:16 1378:17

correlation [1] 1384:9

counsel [1] 1401:11

counts [1] 1375:18

couple [2] 1397:9 1421:8

course [3] 1280:10 1287:9 1357:17

Court [33] 1275:1 1294:2 1306:7 1312:22 1314:18 1314:24 1317:3 1336:15 1336:16 1337:20 1338:19 1339:19 1340:13 1341:6 1344:1,17,22 1345:23 1350:7 1359:17 1362:1 1376:7 1377:9,11 1378:14 1378:22 1379:21 1380:19 1381:2,9,18 1383:14 1384:4,19 1385:19 1390:20 1395:3,8,15 1396:1 1407:11 1411:18 1412:14 14.,.2 1422:13 1423:11,20 1425:5 1428:17 1429:1,11,14 1430:10

cover [2] 1345:11 1348:11

covered [1] 1427:18

CP [1] 1389:6

CPCL [69] 1325:6,9,22 1325:24 1326:8 1327:8 1327:12,18,23 1329:19 1330:1,5,14,15 1331:1,3 1331:10,12,14 1332:11 1334:13,16,21 1335:1 1337:2 1338:16 1347:7 1350:15 1351:6,8,17,18 1353:17 1354:9,14,18 1355:6,20 1356:1,4,12 1359:24 1360:4,9,13,22 1371:14,19 1372:3 1382:15,17,20 1388:16 1388:19,23 1389:8,9,13 1389:15 1392:12,16 1397:6,10,10 1424:24 1425:8,15 1426:2,4

CPCLs [3] 1353:24 1354:2,4

CPT [1] 1333:24

create [1] 1334:4

created [4] 1285:12 1339:15 1358:21 1383:11

creating [1] 1285:19

Criminal [1] 1277:7

cross [1] 1414:4

cured [1] 1416:10

CURTIN [1] 1430:19

-D-

D [8] 1277:2 1278:1 1334:5 1338:7 1341:12 1341:14,16 1407:15

daily [3] 1289:12

DAP [6] 1325:15 1327:1 1351:15 1354:1 1388:22 1389:11

data [131] 1331:8,12,20 1331:22,24 1332:3,4,16 1332:17,18 1338:23 1339:2 1345:2,3,6 1347:23 1352:5,5,6,15,24 1353:4,5,7,12,15 1354:22 1355:16 1358:9,15,20,22 1359:2,5,7,8 1360:15 1361:3,6,7,8,12,18,19,20 1371:5,13,15 1372:11,14 1372:17,21,24 1373:1,2,4 1373:7,8,9,11,15 1374:3 1374:5,7,8,11,23 1379:5 1379:12,13 1381:16 1382:3,8 1383:4 1385:6 1385:17 1386:8,10,12,19 1387:5,11,18 1388:13 1389:23 1390:3,24 1391:21 1392:7,9,13 1393:8,14 1394:21,24 1395:1,18,21,22 1396:5,7 1396:9,10,12,13,17 1397:22,23 1398:1,2,7,12 1398:14,18,22 1399:19 1399:20 1400:1,2,3,8,13 1403:4,5,8,8 1421:5 1423:5,6,8 1426:20

date [1] 1345:9

David [1] 1276:11

days [1] 1312:18

DC [2] 1277:2,8

dead [1] 1378:2

deal [1] 1426:22

dealing [1] 1326:12

dealt [2] 1312:19 1420:1

DEANNA [1] 1430:19

decrease [1] 1329:23

decreased [2] 1316:4,9

Defendant [3] 1275:9 1275:12 1277:4

define [1] 1328:16

definitely [1] 1283:13

degree [1] 1418:3

degrees [1] 1418:2

delivers [1] 1428:13

delivery [2] 1282:7 1283:6

demonstrate [1] 1338:14

demonstrated [2] 1387:13 1394:14

demonstrates [1] 1371:7

densities [1] 1347:14

density [6] 1347:15,16 1347:17,21 1356:1,19

department [3] 1277:6 1344:11 1371:7

depending [1] 1329:7

depo [1] 1379:24

deposes [1] 1279:3

deposition [19] 1275:11 1339:10 1384:18 1401:5 1401:6,8 1406:8 1423:13 1429:20 1430:4

derailed [1] 1306:9

design [3] 1345:12 1347:24 1348:21

desire [1] 1398:1

determinant [1] 1405:14

determines [2] 1404:9 1404:23

developed [2] 1340:6,8

development [3] 1333:13,16,19

dictionary [3] 1414:19

difference [4] 1350:19 1351:3 1357:24 1422:10

different [9] 1280:14,17 1318:4 1371:23,24 1389:9 1392:17 1397:18 1424:16

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Generated by unknown from industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

differently [1] 1371:20
direct [2] 1407:4 1413:10
directed [1] 1315:8
directing [1] 1350:9
directly [2] 1283:5 1292:4
discourse [1] 1403:16
discovery [3] 1339:12 1379:23 1386:5
discuss [1] 1361:22
discussing [2] 1281:16 1289:18
discussion [3] 1294:5 1354:21,24
discussions [1] 1383:24
disprove [2] 1373:4 1374:5
disproved [2] 1370:22 1395:10
dispute [1] 1373:1
distilled [1] 1412:5
distribution [1] 1293:19
Division [2] 1275:2 1277:7
doctor [4] 1412:15 1417:16 1418:15,17
document [19] 1337:14 1337:16 1338:4 1342:18 1343:16,20,23 1344:7 1345:20 1348:13 1379:23 1380:3,10,16,22 1381:3 1383:17 1422:19 1425:23
documents [7] 1341:19 1380:9 1381:7,10 1390:11 1429:6,6
doesn't [18] 1315:10 1357:6 1358:14 1361:1 1372:1 1379:7 1381:21 1383:3 1385:21 1390:7 1403:3 1408:16 1409:11 1420:18,20 1424:13 1426:24 1428:11
donating [1] 1402:10
done [34] 1314:5 1330:11 1330:23 1331:12,13,15 1331:16,17 1332:10 1333:4,7 1338:8,21 1339:17 1341:13,15,17 1344:9 1345:11 1346:15 1348:4,7,8 1361:5,14,19 1371:23 1382:7 1385:20 1393:10,20 1394:13 1397:19 1401:23
donors [1] 1354:14
doubly [1] 1375:24
down [28] 1282:24 1308:10 1314:8 1338:16 1356:24 1357:6 1358:10 1358:11,12,13 1360:10 1360:14,17,23 1361:1 1370:7 1371:7 1374:1,3 1382:10,17 1383:2 1389:17 1415:12,17 1416:2,19 1425:5
downward [1] 1396:23
Dr [14] 1280:2,8 1281:17 1342:1 1346:1 1377:21 1383:14 1384:4 1390:20 1395:4 1404:23 1406:14 1417:14 1423:20
draw [3] 1372:7,8 1378:5
drink [1] 1427:6
due [4] 1290:8 1338:20 1375:11,13
Dupont [1] 1334:1
during [10] 1319:21 1320:14 1358:4 1379:6 1382:1 1383:11 1384:1,2 1393:7 1394:22
duties [1] 1344:23

-E-

E [4] 1276:4 1278:1,2,6
easier [1] 1345:15
effect [24] 1279:16 1292:12 1315:4 1328:9 1329:3,5,11,15 1334:13 1334:21 1359:24 1371:14 1380:11 1382:14,18,18 1383:12 1388:1,2 1392:12 1397:16,17 1410:5 1427:13
effects [8] 1289:20 1290:1,11,18,20,21 1291:11 1328:11
effectuate [1] 1305:22
effectuates [2] 1308:12 1313:6
eight [5] 1353:18 1356:17 1357:8 1358:11 1360:9
either [5] 1331:16 1344:14 1373:24 1383:11 1413:9
element [1] 1285:22
elements [1] 1338:12
employed [3] 1319:22 1320:3,8
empty-handed [1] 1380:1
end [3] 1346:24 1347:1 1355:18
engineering [4] 1383:23 1386:4,7 1390:9
enhances [2] 1292:12 1326:5
enhancing [1] 1279:16
entire [1] 1335:5
entitled [2] 1335:17 1385:1
environment [1] 1397:6
equal [2] 1376:12 1425:19
equalizes [1] 1304:22
equalizing [1] 1293:18
Ervin [1] 1276:18
establish [1] 1371:8
established [3] 1370:9 1404:11,13
European [1] 1416:12
everybody [4] 1421:18 1421:18,23 1422:4
evidence [5] 1339:17 1381:15 1385:3 1426:23 1426:23
exact [3] 1358:17 1372:4 1384:13
exactly [2] 1291:1 1384:10
EXAMINATION [2] 1279:4,7
examine [2] 1335:17 1385:12
except [1] 1371:10
excerpt [1] 1413:13
exchange [1] 1380:3
Exhibit [30] 1278:8,9,10 1278:11,12 1281:14 1332:22 1336:11,22 1359:13,20 1370:5,12 1377:24 1384:21 1390:22 1390:22 1392:15 1406:8 1423:13
exist [4] 1379:3 1381:21 1387:19 1393:14
experiment [28] 1336:24 1338:5,9,13 1345:4 1348:1 1352:3 1359:21 1361:2,4,14 1371:20,22 1372:6,9 1374:14,16,22 1377:23 1393:20
experimental [14] 1345:7,12 1347:24 1348:17,21 1349:1,5,10 1349:12,13,17 1350:3 1351:4 1374:23
experimented [1] 1349:15
experiments [3] 1335:11 1349:14 1374:18
expert [3] 1341:23 1406:16 1421:1
experts [4] 1406:4,16,17 1413:17
Expires [1] 1430:21
explain [1] 1387:2
explained [1] 1314:5
explore [1] 1408:20
exposure [1] 1289:13
extensive [1] 1304:6
extra-cellular [1] 1311:17
extractable [6] 1287:2,3 1287:7,10 1288:5,7
extraction [1] 1428:12
extruded [5] 1348:20 1349:19,21 1350:14 1351:6

-F-

F [3] 1275:15 1430:2,15
face [1] 1353:16
facilitates [1] 1428:12
fact [12] 1304:21 1316:9 1317:11,13,14,16 1319:19 1344:8 1373:19 1375:13 1379:12 1393:24
factor [1] 1329:21
factors [2] 1293:4 1329:19
fair [3] 1291:13 1313:9 1317:20
false [5] 1316:5 1340:6 1355:10 1405:8,8
far [3] 1288:1 1334:12 1383:18
farthest [1] 1416:19
fashion [4] 1283:5 1394:17 1396:21,23
fax [1] 1340:20
FDA's [1] 1423:7
February [1] 1279:12
few [2] 1413:18 1416:12
finding [1] 1381:19
fine [5] 1287:1 1288:21 1309:14 1379:16 1425:18
finished [3] 1306:5,6 1345:1
fired [1] 1346:19
first [15] 1317:7 1318:9 1318:14 1319:2 1332:20 1351:17 1370:21,21 1371:22 1375:19,20 1394:1 1403:11,13 1412:3
five [2] 1312:17 1348:22
fix [5] 1279:14 1281:10 1281:19,21 1282:2
flawed [1] 1394:20
floor [1] 1384:5
flue-cured [4] 1348:19 1349:18 1350:13 1351:5
focus [1] 1305:9
focusing [2] 1308:4 1402:6
follows [2] 1279:3 1308:19
foregoing [1] 1430:5
form [48] 1282:10,21,22 1285:19,20 1286:2,6,10 1286:11,13,15,16,17,20 1309:22 1311:18 1317:18 1317:19,23 1328:13 1376:24 1382:22,23,24 1402:20 1404:9,14,22 1405:13 1406:24 1407:3 1407:10,18 1408:11,14 1410:7,7 1420:4,4,12,15 1420:16,19,22,22 1421:3 1421:13 1428:7
format [1] 1340:8
formed [1] 1285:8
forms [2] 1287:13 1315:21
formulation [1] 1353:23
forward [1] 1395:13
found [4] 1316:14 1379:18 1413:22 1416:11
four [15] 1291:1 1340:9 1341:18 1344:11,13 1348:22 1350:10,11 1354:4 1357:12,13 1359:21 1371:23 1389:13 1389:21
four-year [1] 1386:7
Fourth [1] 1276:2
Fraud [1] 1277:7
free [14] 1282:18 1285:16 1288:4 1292:23 1304:19 1309:15 1310:4,13 1404:17,19 1407:9,10 1420:16,21
free-base [11] 1285:12 1285:17,20 1286:7 1288:5 1288:18 1292:22 1305:14 1309:22 1311:20 1428:7
frees [2] 1291:23 1311:17
Friday [1] 1275:19
front [4] 1336:22 1342:21 1342:24 1353:13
full [1] 1430:6
full-flavored [1] 1280:20
functions [4] 1289:16 1334:1,2,3
future [1] 1380:20

-G-

G [1] 1276:12
Gardner [1] 1277:1
general [4] 1372:22 1385:7 1386:1 1397:23
generate [1] 1325:15
generated [5] 1335:11 1360:16 1386:9 1387:5 1387:11
Georgia [2] 1276:7 1277:12
Germany [1] 1331:18
given [2] 1344:2 1394:8
goes [27] 1356:23,24 1357:6 1358:11,12,13 1360:9,13,17 1361:1 1370:7 1371:2,7 1372:3 1373:19,24 1374:1,2,3 1382:9,12,17 1383:2 1384:15 1387:8,15 1402:4
gone [3] 1374:13
good [7] 1279:9,10 1327:16 1407:20 1416:21 1422:6 1423:9
Gordon [1] 1276:7
Gory [1] 1416:8
governed [1] 1406:24
graph [3] 1360:11 1370:5 1383:10
graphed [1] 1359:20
Growers [1] 1377:18
guess [1] 1347:22
gum [1] 1422:9
guy [1] 1423:4
guys [1] 1422:10

-H-

H [1] 1278:6

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Generated by Industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

hand [4] 1332:19 1336:21 1339:9 1406:13
handbook [1] 1370:11
handed [2] 1337:15 1359:19
handled [2] 1403:10,12
happening [1] 1311:3
happy [1] 1399:14
hard [1] 1306:9
hazardous [1] 1422:5
head [3] 1341:12,14,16
health [6] 1290:1,8,11,15 1291:10 1422:5
heard [1] 1286:24
heavier [3] 1327:19,24 1329:4
held [2] 1294:5 1415:23
helps [3] 1293:16,16 1335:3
Hendricks [3] 1276:8
Henningfield [5] 1405:24 1406:2 1423:3,9 1423:24
hereby [1] 1430:3
herein [3] 1275:12
hereinafter [1] 1279:2
high [1] 1347:17
higher [2] 1314:19,20
highest [1] 1320:13
himself [2] 1418:4,5
hired [1] 1411:23
hoarse [1] 1427:7
hold [2] 1418:5,14
holding [1] 1418:16
holds [1] 1394:4
Honor [27] 1294:1 1315:7 1336:18 1338:1,13 1339:1 1339:4 1340:2,17 1343:17 1343:23 1344:7 1345:1 1361:24 1375:2,7 1376:1 1376:22 1378:10 1379:11 1381:12,15 1384:17,24 1385:13 1391:2 1429:9
horse [1] 1378:3
host [1] 1400:20
hundred [9] 1425:8,9,12 1425:15,20 1426:1,4,8,17
hydrogen [1] 1328:18
hydroxide [1] 1389:10
hypothesis [1] 1358:17
hypothetical [3] 1316:7 1349:8 1380:2

-I-

identification [5] 1332:24 1336:13 1359:15 1406:10 1423:15
identified [1] 1398:6
identify [6] 1361:20 1377:3 1379:15 1385:17 1399:5,8
ignores [1] 1344:8
Ill [1] 1276:8
important [1] 1407:17
inactive [4] 1282:21 1410:7 1414:1,2
included [3] 1353:17 1357:24 1358:3
inclusion [2] 1338:16 1353:1
incorrect [3] 1313:18 1409:15,18
increase [26] 1282:8 1283:8 1314:16,18 1316:15 1318:13,22,23 1319:1 1326:9 1329:8,22 1354:9 1375:12,15 1377:17 1387:6 1392:2,3 1392:24 1393:1,12 1400:4 1402:9,11 1403:1
increased [6] 1316:2 1328:2 1331:9 1397:7 1400:14 1402:24
increases [3] 1315:16 1371:17 1379:1
increasing [21] 1318:10 1318:11,18 1326:7 1329:12 1359:24 1371:14 1371:16 1376:3 1382:15 1383:13 1384:14 1388:1 1388:16 1392:12,23 1394:15,17 1396:19 1397:5,9
increasingly [1] 1386:20
indicated [1] 1331:9
infinite [1] 1372:13
information [11] 1320:17 1355:16 1359:4 1373:14 1381:1 1393:6 1398:20,21 1399:19,20 1400:8
inhaled [1] 1418:24
insisted [1] 1337:16
instrument [1] 1357:15
insult [1] 1414:23
intelligence [1] 1414:24
interest [1] 1374:19
interested [1] 1430:11
interpret [5] 1337:13 1338:7 1339:8 1345:19 1357:22
interpretation [1] 1342:20
interpretations [1] 1344:19
interview [1] 1400:11
intracellular [1] 1311:16
introduce [1] 1284:3
introducing [2] 1329:3 1351:19
introduction [4] 1327:11,13,23 1328:8
investigate [1] 1385:2
ion [1] 1328:18
ionization [1] 1424:13
ionized [4] 1286:16 1288:11 1413:24 1418:24
irresponsible [1] 1391:22
issue [1] 1352:8
issues [1] 1426:14
itself [1] 1375:3

-J-

J [1] 1276:16
Jack [3] 1423:3,8,24
JAMA [1] 1402:3
James [1] 1276:4
JEFFERSON [1] 1275:1
Jeffrey [12] 1275:8,12 1279:1 1309:4 1360:23 1360:24 1361:16 1387:19 1388:7 1410:13 1421:11 1430:4
Jimmye [1] 1277:8
John [1] 1277:2
Johnson [1] 1276:18
Joseph [1] 1276:20
Judge [1] 1379:23
juice [1] 1383:9
July [1] 1275:19
jurisdictional [1] 1423:7
Justice [1] 1277:6

-K-

keep [12] 1288:22 1387:23 1390:4 1402:6 1414:3,6 1415:12 1416:9 1422:6,7,8 1427:19
Kentucky [5] 1275:19 1276:3,16,20 1430:20
kept [1] 1381:10
Kessler [3] 1280:2,2,8
kinetic [1] 1421:4
King [1] 1276:6
knew [2] 1388:20 1401:5
knowledge [2] 1372:22 1386:1

-L-

L [2] 1276:11 1407:15
lab [9] 1332:5 1335:8,10 1338:3,7 1344:9 1345:2,3 1346:11
labeled [1] 1377:24
laboratories [1] 1337:1
laboratory [2] 1336:23 1348:8
language [1] 1284:16
large [3] 1424:6,11 1428:3
last [1] 1345:17
Laura [1] 1277:3
layperson's [1] 1395:5
leading [1] 1406:3
leaf [24] 1292:5 1293:14 1293:22 1311:16 1316:24 1352:10,20 1353:3,6,8 1361:21 1370:11 1377:18 1377:20,22 1378:18 1381:22 1383:18,21 1389:24 1390:3,4,15,18
least [1] 1314:13
left [9] 1333:8 1335:13 1338:4,5 1339:3,16,18 1346:16 1395:2
legend [1] 1341:1
less [3] 1289:15 1356:23 1425:2
level [4] 1354:6 1355:23 1392:2 1399:21
levels [4] 1280:14,17 1282:4 1371:23
life [1] 1385:10
lights [1] 1315:4
limited [4] 1285:10 1310:16 1371:20 1390:24
liquid [1] 1328:22
list [1] 1411:18
listen [1] 1312:18
lists [1] 1347:3
literature [15] 1287:20 1384:2,5 1385:9 1401:24 1402:2,2 1405:16,18,19 1405:21 1411:15 1421:8 1428:18,21
log [2] 1328:18 1331:24
logic [1] 1405:9
look [33] 1281:15 1306:21 1332:4,5,5,16 1337:8 1341:2 1345:5,6 1347:20 1354:15 1355:15,17 1357:14,19,23 1383:7 1387:24 1388:4 1391:1 1392:7 1399:11 1405:16 1411:9,24 1412:3,8 1416:6 1423:10 1425:7 1426:16,17
looked [13] 1331:23 1332:2 1352:7 1354:18 1380:11 1399:12,15,18 1399:24 1400:2,3,7,8
looking [11] 1330:2,4 1331:8 1332:17 1337:4 1345:14 1352:15 1383:6 1393:8 1400:9 1403:15
looks [2] 1380:17 1382:12
Louisville [4] 1275:18 1276:3,16,20
low [3] 1347:15
lower [5] 1280:21 1328:13,20,21,23
lowering [3] 1328:9 1329:5,15
lung [34] 1306:17 1312:3 1313:3 1317:18,24 1375:10 1392:4 1404:11 1405:1 1406:19 1407:1,5 1407:23 1408:3,4 1409:13 1409:24 1410:22 1413:4 1415:14 1416:18 1417:3 1419:3,19 1421:14,20 1422:22 1424:4,10 1427:22 1428:2,10,13,16
lungs [28] 1292:3,14 1304:9,14,16,18,20,24 1305:6,12,23 1306:19 1307:4 1308:13,21 1309:22 1311:14 1312:8 1314:1 1315:9 1370:19 1391:6 1393:2 1404:8 1405:16 1416:1,20 1418:24

-M-

M [1] 1278:2
M.D [1] 1417:21
Macon [6] 1277:12 1348:20 1349:18,21 1350:14 1351:5
Main [1] 1276:19
mainstream [1] 1424:7
majority [1] 1326:20
makes [4] 1280:13 1311:4 1345:15 1351:2
malate [1] 1285:9
man [1] 1377:6
manipulated [1] 1281:10
manipulates [2] 1279:13 1281:18
manual [35] 1292:5 1293:14,23 1317:1 1352:11,20 1353:3,8 1361:22 1377:18,20,22 1378:18 1381:22,23 1383:19,21 1384:6,7,9,14 1384:21 1385:20,21 1386:3 1389:1,2,4,5 1390:1,3,5,16,18,21
manufacturable [1] 1425:16
manufacture [1] 1326:23
manufactured [13] 1291:8 1319:8,10,11 1325:22 1326:9,21 1334:9 1348:18 1358:4 1425:10 1425:24 1426:7
manufacturer [1] 1334:18
manufacturers [2] 1280:13 1282:6
manufacturing [2] 1290:17 1319:20
mark [4] 1332:20 1336:8 1359:10 1406:5
marked [9] 1278:7 1332:23 1336:12 1359:14 1359:19 1370:4 1406:9 1423:11,14
market [2] 1276:15 1425:11
marketed [1] 1320:14
Marlboro [4] 1383:23

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf Generated by UCSF Industry Documents Library http://www.industrydocuments.ucsf.edu/docs/ytfl0001

1386:4,7 1390:9
Massachusetts [1] 1277:1
matter [10] 1354:8,10 1389:12 1408:16 1409:11 1420:18,20 1424:13 1426:24 1428:11
may [17] 1329:7 1331:16 1338:2 1340:14,14 1341:21,21 1361:2,11 1371:19 1394:23,23 1407:13 1413:1,1 1418:6 1418:6
mean [12] 1284:9 1316:4 1340:18,21 1342:18 1347:3 1348:2 1349:20 1378:3 1397:19 1401:2 1415:2
means [2] 1342:22 1415:3
measure [4] 1328:23 1334:15,24 1343:5
measured [3] 1330:2,4,7
measurement [1] 1343:6
measurements [1] 1357:10
measuring [2] 1332:12 1343:4
mechanisms [1] 1311:1
medical [4] 1414:19 1417:15 1418:15,17
meet [1] 1281:2
meetings [1] 1401:12
membrane [2] 1318:1 1407:4
membranes [6] 1305:17 1309:17 1414:5,21 1415:4 1415:7
mentioned [2] 1350:17 1350:18
Mershon [1] 1379:23
met [4] 1349:22 1350:16 1350:18 1400:11
metabolism [1] 1289:7
methodology [1] 1345:8
Michael [1] 1276:16
Middleton [2] 1275:17 1276:2
Mike [5] 1279:11 1292:8 1370:16 1413:2,7
Milliman [1] 1276:4
million [1] 1393:21
mind [1] 1405:23
minus [1] 1358:6
minute [3] 1411:12 1414:14 1419:22
minutes [50] 1279:12 1281:9 1292:8,10 1304:5 1307:6 1308:17,19 1313:21 1317:16 1325:19 1335:15 1355:10 1358:23 1359:6 1370:16 1372:18 1373:6,9,10,12 1374:23 1374:24 1375:4,6,8,21,22 1376:10,19,21 1377:7 1380:23 1387:20 1391:4 1394:19 1398:16 1399:13 1399:16,18 1400:1 1401:15 1405:12 1408:23 1412:20,24 1413:19 1417:9 1419:16 1422:17
mistake [1] 1395:12
mixing [1] 1373:21
mixture [1] 1328:23
Mobley [2] 1276:18,20
moment [2] 1294:1 1311:11
months [3] 1401:4,7,7
moot [1] 1315:11
morning [5] 1279:9,10 1288:1 1396:24 1410:18
most [7] 1280:4 1337:11 1346:13 1402:15 1410:18 1413:23 1416:19
mouth [6] 1315:3 1415:3 1415:4,7,24 1416:15
move [5] 1283:13 1313:10 1378:9 1422:12 1427:16
Ms [2] 1277:3,8
mucous [2] 1415:4,6
must [5] 1314:14,15 1315:15 1317:11,16

-N-

N [3] 1278:1,2,2
N.W [2] 1277:1,7
nail [1] 1308:10
name [6] 1319:16 1327:9 1331:7 1384:4 1386:13 1400:22
named [6] 1383:18 1384:6 1385:20 1386:2 1421:8 1429:4
names [1] 1405:23
nation [2] 1372:19 1391:14
naturally [4] 1286:1 1287:14 1289:2 1310:2
nature [3] 1407:11,12,13
necessarily [1] 1329:1
necessary [1] 1308:9
need [3] 1342:20 1345:5 1378:2
needs [1] 1404:17
Neil [9] 1411:10,15,22 1413:10,15,19 1417:1 1422:19
nervous [6] 1292:15 1304:11 1305:8 1307:5 1314:3 1370:20
never [18] 1286:23 1315:4 1319:11 1339:9 1343:23 1344:3,3,8 1393:10 1425:10
new [3] 1276:11,11 1277:7 1395:21,22
next [2] 1336:9 1403:20
NH [8] 1340:18,21,24 1341:1,6,10,24 1342:4
NH3 [1] 1341:9
nicotine [173] 1279:14 1279:15,16,22 1280:6,14 1280:18,20,21 1281:3,5 1281:10,19,21 1282:2,4,7 1282:9,10,19 1283:4,8,18 1284:20,23,24 1285:1,3,6 1285:7,12,17,19,20,22 1286:2,5,21 1287:8,14 1288:3,13,17,19 1291:18 1291:23 1292:2,12,13,21 1292:22,23,23 1293:12 1293:15,17,19 1304:8,13 1304:15,17,19,21,22,24 1305:5,14,14,16,18,20,24 1306:12 1307:1,2,10,15 1307:22 1308:13,14,20 1309:3,10,19,21 1310:1,3 1310:12,13,17,19 1311:9 1311:12,13,15,18,20,24 1312:2,7,14 1313:24 1317:17,23 1326:5 1370:18 1375:10,14 1391:6 1392:3 1393:2 1404:7,9,14,22 1405:14 1406:4,18,24 1407:1,3,8 1407:15,15,18,24 1408:7 1408:10,14,24 1409:6,12 1409:23 1410:6,15,21 1411:3,4,6 1412:1,5 1413:5,24 1415:22 1416:13,22 1417:3,15 1418:23 1419:1,4,18 1420:3,10,11,14,15 1421:2,13,19 1422:7,20 1422:22 1424:4,7,14 1427:14,22 1428:1,12,14 1429:7,7
nicotine's [1] 1313:3
nine [4] 1275:2 1401:4,6 1401:7
nitpick [1] 1343:15
nitrogen [1] 1341:4
nobody [1] 1425:24
non-absorbable [1] 1306:1
non-blends [1] 1353:2
non-extractable [2] 1287:5,18
non-ionized [5] 1286:12 1286:15,19,21,23
non-pharmacoactive [1] 1306:1
non-pharmacologically [3] 1288:14,19 1306:13
non-protonated [5] 1286:10,11 1287:8,12 1288:4
non-recon [1] 1353:2
none [4] 1380:4,6 1398:2 1425:3
nonionized [1] 1288:11
Nor [1] 1344:15
normal [2] 1289:7,15
Normally [1] 1344:21
nos [1] 1291:1
Notary [1] 1430:20
note [3] 1294:8 1321:2 1362:8
notebook [7] 1338:3 1344:16 1345:3,4 1346:11 1348:22 1357:21
notebooks [4] 1335:8 1335:10 1338:8 1344:9
notes [3] 1347:13 1430:7
nothing [2] 1370:10 1398:8
notice [1] 1275:16
now [72] 1279:20 1280:10 1281:21 1283:3,17 1287:22 1288:9 1289:22 1290:5 1291:6,22 1306:8 1307:7,19 1308:5 1309:18 1312:3,5,20 1313:20 1314:11 1317:7 1318:15 1319:7 1320:17 1326:4 1326:17 1327:10 1333:3 1340:12 1341:19 1343:1 1346:10,19 1348:9,14 1349:4,17 1350:10 1351:7 1351:22 1356:11,15 1357:8 1358:1 1359:18 1370:4 1375:19 1377:21 1378:11 1380:5,20 1381:19 1383:19 1384:6 1384:17 1385:21,23 1396:13 1401:8,21 1403:9 1403:18 1404:5 1406:14 1410:20,23 1411:9 1416:24 1425:8,20,21
number [14] 1284:2,4 1287:20 1293:3 1314:14 1351:10 1359:20 1370:5 1370:12 1372:16 1374:9 1374:12 1380:9 1416:4
numerous [1] 1401:11

-O-

O [1] 1278:2
o'clock [1] 1275:20
O'Connell [3] 1276:14 1276:16
oath [1] 1355:3
object [2] 1310:15 1375:1
objection [5] 1317:3 1343:18 1376:8 1377:12 1378:7
objections [1] 1378:6
obviously [2] 1339:15 1379:19
occurring [2] 1286:1 1358:18
occurs [4] 1285:7 1287:14 1289:2 1292:24
off [12] 1293:24 1294:3,5 1320:20,22 1345:23 1346:3 1361:23 1362:1,2 1403:23 1429:16
offices [1] 1275:17
Once [1] 1395:18
one [81] 1284:1,6 1287:14 1293:8,10,17 1308:1,6 1310:4,8 1311:6,8,9,22 1311:23 1312:1 1314:14 1315:19 1317:13 1318:5 1318:8,17 1328:11 1331:6 1334:3 1337:21 1338:11 1342:12 1344:13 1345:4 1348:12,21 1350:10,12 1351:7 1352:3 1355:17 1358:20 1371:18,19 1372:6 1374:10,14,15 1375:12,19,20,22 1377:8 1380:10 1382:22,23,24 1388:6 1392:8,13 1396:19 1398:3,7 1400:22 1402:12 1402:20 1403:21 1406:16 1406:16 1408:2 1411:16 1411:19,21,21 1413:12 1413:12,13,16,19 1414:20 1420:1,2 1422:19 1425:23 1428:19
ones [1] 1311:7
opinion [14] 1284:20,21 1285:2 1305:11 1306:15 1339:14,17 1394:18 1395:24 1398:10 1421:24 1422:4,11,15
opinions [1] 1395:20
opportunity [2] 1344:2 1380:3
opposite [4] 1358:18 1372:4 1373:19 1421:10
oranges [1] 1373:22
order [1] 1318:8
Oriental [4] 1348:20 1349:18 1350:13 1351:5
otherwise [3] 1394:7 1417:23 1430:11
overall [2] 1328:2 1329:2
overruled [1] 1378:7
overruling [1] 1377:12
own [1] 1371:6

-P-

P.O [1] 1277:12
package [2] 1326:13 1390:10
page [39] 1278:3 1281:13 1281:15 1340:19,20,21 1342:21,24 1345:12 1346:22,24 1347:1 1348:21 1350:8,18 1355:17 1411:9 1412:1 1423:24
pages [7] 1336:24 1337:7 1337:10 1345:17 1346:11 1346:12,13
paragraph [3] 1412:3,8
Parks [1] 1276:10
Parker [1] 1276:14
part [13] 1281:5 1291:24 1304:17 1311:23 1312:12 1312:14 1319:23 1320:9 1344:22 1377:4 1388:10 1419:2 1428:5
partially [2] 1428:4,5
particularly [1] 1354:14

http://legacy.library.ucsf.edu/tid/bnq07a00/pdf Generated by Legacy Industry Documents Library - ucsf.edu/docs/ytfl0001

partly [1] 1307:10
parts [3] 1328:1 1377:3,4
pass [2] 1415:8,9
past [3] 1282:12 1418:18 1418:20
Peachtree [1] 1276:6
Penetration [1] 1318:1
people [7] 1307:11 1385:9 1392:11 1418:1 1421:8,10,12
per [1] 1289:10
percent [32] 1353:17,18 1353:18,19 1355:20 1356:1,17 1357:9 1358:1 1358:5,7,11,12,13 1360:9 1360:13,17 1389:16,16 1389:17,17 1424:7 1425:8 1425:9,12,15,20,21 1426:1,4,8,17
percentage [1] 1320:13
percentages [1] 1347:8
performed [6] 1332:1 1334:10 1337:1,23 1338:4 1338:5
period [1] 1394:22
permeate [1] 1305:17
permeation [1] 1407:5
permits [1] 1307:1
permitted [3] 1339:20 1377:13 1395:6
person [4] 1315:3 1341:12 1342:1 1406:15
ph [163] 1285:13 1293:1,9 1305:13 1307:12,23 1308:13 1309:1,2 1310:11 1310:18 1311:4 1313:7 1314:7,8,11,16,19,20 1315:16,19,22 1316:9,15 1317:10 1318:13,16,16 1319:2,6 1326:10 1328:9 1328:13,15,16,17,20,21 1328:23,24 1329:3,5,9,12 1329:15,22,23 1330:1,4 1330:12,13 1331:1,2,9 1332:12 1335:16 1336:1 1338:15 1340:3 1342:7 1347:3 1350:20 1351:24 1354:10,15 1355:7,23 1356:13 1357:6,10 1358:7 1358:24 1360:1,22 1370:7 1371:1,14,17,20 1372:3 1373:18,23,24 1375:2,12 1375:15 1376:3,20 1377:17 1378:24 1379:7 1380:11 1381:17 1382:4 1382:9,15,18 1384:15 1386:22 1387:8,15 1388:2 1388:7 1392:2,12 1393:1 1393:13 1394:16 1396:21 1396:22 1397:7 1399:10 1400:6,14 1402:4,11 1403:1 1406:20 1407:8 1407:17 1408:1,8,12,13 1408:16 1409:3,12,14,23 1410:1,6,8,9,12,13 1411:2 1411:5 1413:6,22,23,24 1415:16 1416:10,13,23 1417:4 1419:5 1420:11 1420:19 1422:23 1424:5 1424:12,17,17,19,21 1425:7,19 1426:4,16,17 1427:13
Ph.D [3] 1277:13 1418:2 1418:11
Ph.D. [1] 1417:21
pharmacological [1] 1285:11
pharmacologically [9] 1282:10,21 1285:21 1288:17 1306:14 1309:4 1309:5,11,12
pharmacologically-active [1] 1288:13
pharmacologist [5] 1417:18,24 1418:4,8,10
pharmacologists [1] 1418:2
pharmacology [1] 1418:12
phase [1] 1418:23
physical [3] 1334:4,13 1334:21
piece [9] 1343:15 1371:13 1374:10 1381:14,15 1385:6 1392:13 1398:7 1428:20
pipe [1] 1416:11
place [2] 1341:17 1394:1
Plaintiff [2] 1275:6 1276:17
plant [2] 1282:20 1286:2
plants [1] 1285:8
Plaza [1] 1276:10
plenty [1] 1359:4
plus [1] 1358:6
point [14] 1294:8 1306:21 1315:11 1318:9 1321:2 1345:13 1362:9 1376:20 1383:16 1395:5 1413:24 1416:20 1425:14 1429:15
pointed [1] 1346:16
points [3] 1307:9 1318:4 1359:21
portion [1] 1347:4
possession [1] 1381:5
pour [2] 1344:19 1345:5
prefer [4] 1280:19,19,21 1338:22
premise [1] 1370:21
prepare [2] 1401:5,10
prepared [2] 1339:21 1400:23
PRESENT [1] 1277:5
presentation [1] 1401:3
pretty [2] 1306:8 1331:21
previously [1] 1279:2
primarily [1] 1413:24
primary [1] 1416:13
prime [1] 1355:9
principal [1] 1338:11
printout [7] 1337:7,11 1345:16 1346:20 1347:2 1347:4 1374:13
privileged [1] 1395:1
problem [7] 1320:16 1340:1,11 1344:6 1384:23 1391:3,19
proceeding [1] 1430:12
proceedings [1] 1430:6
process [2] 1284:7 1327:3
processes [1] 1327:5
produce [1] 1325:11
produced [5] 1289:6,10 1289:15 1380:9,17
produces [3] 1280:23 1380:4 1391:5
product [4] 1309:6 1319:11,16 1331:11
production [3] 1380:10 1380:17 1381:13
products [9] 1281:1 1333:22,23,24,24 1334:4 1334:8,14 1416:14
Professional [4] 1275:15 1430:3,15,19
project [14] 1386:8,12,12 1386:14,17,18 1387:12 1387:12 1393:4,5,11,11 1396:7,8
proof [4] 1340:5,6 1352:15 1394:10
properties [2] 1290:4 1334:22
proposition [5] 1315:14 1317:7 1370:22 1378:12 1403:19 1404:5
propositions [3] 1314:13 1378:13 1419:24
protonated [2] 1285:18 1287:16
Prototype [2] 1333:22 1333:23
prototypes [1] 1333:21
prove [1] 1394:10
proved [4] 1394:7 1397:1 1397:2,4
provided [1] 1281:3
provides [1] 1281:1
Providian [1] 1276:15
providing [1] 1282:3
public [3] 1391:24 1392:5 1430:20
publicly [2] 1387:20 1391:14
published [2] 1332:7 1411:22
purportedly [2] 1340:10 1411:11
purpose [6] 1334:9,19 1338:6 1343:19 1348:5 1351:2
purposes [3] 1332:23 1336:12 1359:14 1406:9 1423:14
pursuant [1] 1275:16
put [2] 1287:11 1420:23
puts [1] 1315:3
pyrolic [1] 1328:5

-Q-

qualify [2] 1386:23 1387:2
questions [15] 1315:8 1337:18 1342:17 1343:21 1345:21 1350:8 1352:2 1354:24 1357:20 1383:15 1396:3 1401:16 1423:21 1423:21 1429:13
quibbles [1] 1385:4
quote [4] 1413:10,12,15 1414:7

-R-

R [5] 1334:5 1338:7 1341:12,14,16
raised [3] 1336:1,3 1407:9
raises [3] 1317:10 1335:16 1410:14
Rana [1] 1348:6
range [2] 1419:4 1420:10
rapid [11] 1305:11,22 1306:16,19 1307:3 1308:12 1313:3,6 1375:9 1391:5 1419:18
rapidly [46] 1292:2,13 1304:9 1305:6 1308:21 1309:20,21 1312:2,8 1314:1 1317:17 1370:18 1375:16 1404:7,10,24 1405:15 1406:19,24 1407:19,24 1408:7,15,17 1409:1,9,13,24 1410:22 1411:6 1413:5 1414:5 1416:22 1417:3 1419:1 1420:3,12,15 1421:2,13 1421:20 1422:23 1424:4 1424:14 1427:2 1428:2,9 1428:16
rate [1] 1317:24
rather [2] 1317:18 1395:15
reaches [6] 1407:23 1408:3 1413:3 1416:17 1417:2 1422:21
read [25] 1290:23 1291:2 1291:4 1334:20 1335:8 1335:10 1337:17,19,20 1342:20 1357:22 1385:9 1397:15 1409:16,19,21 1412:11,12 1413:1 1415:14,19,20 1416:7 1419:11,13
reading [11] 1337:17 1342:18 1412:11,17,19 1412:21,23 1414:3,6 1415:12 1416:9
realize [1] 1280:15
really [1] 1291:5
reason [2] 1280:16 1379:21
reasonable [1] 1417:7
received [1] 1393:7
Recess [3] 1346:6 1404:1 1429:18
recommended [1] 1423:4
recon [14] 1320:13 1355:5 1355:6 1357:4,5 1358:1,2 1384:15 1388:9 1392:24 1396:20 1400:5 1402:14 1402:17
recons [1] 1392:17
reconstituted [31] 1319:23 1320:4,9 1325:7 1325:9 1326:1,18,24 1327:4,12,19,24 1351:23 1353:1 1355:22 1360:5 1360:22 1361:15 1372:3 1380:12 1383:8 1386:21 1387:7,14,23 1391:24 1399:10 1402:4,7 1425:12 1426:8
record [39] 1279:5 1291:16 1294:1,4,6 1304:2 1313:16 1320:21 1320:23 1325:2 1345:24 1346:4,8 1359:19 1361:24 1362:1 1403:24 1404:3 1409:23 1429:17
reduced [1] 1399:19
refer [7] 1281:12 1282:12 1284:6 1286:21 1287:23 1288:2 1370:10
reference [4] 1416:4,5,6 1425:14
referenced [1] 1293:22
references [2] 1287:21 1390:5
referred [1] 1285:18
referring [4] 1287:8 1313:23 1377:5 1419:8
reflects [3] 1360:7 1370:5 1383:12
regard [1] 1421:1
regardless [13] 1407:24 1408:8,12 1409:13,22 1410:1 1413:5 1416:23 1417:4 1421:20 1422:23 1427:24,24
Registered [4] 1275:15 1430:2,15,19
regular [3] 1327:20 1347:16,20 1356:1,19
relationship [1] 1407:4
relied [7] 1371:9 1378:17 1406:17 1411:14,19 1413:17 1421:7
rely [3] 1373:11,17 1390:17 1411:11,16
relying [10] 1378:3 1379:3,15 1380:21,24 1387:11 1390:13,15 1400:13 1429:3
remains [1] 1374:1
remember [7] 1331:8

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Generated by Legacy Industry Documents ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

1353:10 1412:16,19,21 1412:23 1423:4
rendered [1] 1394:19
repeat [3] 1313:12,14,16
report [4] 1334:7 1383:23 1399:9 1423:7
reported [3] 1275:14 1332:7 1430:4
reporter [7] 1275:16 1409:21 1419:14 1430:3 1430:10,15,19
Reporter's [3] 1294:8 1321:2 1362:8
reports [1] 1345:1
representative [1] 1342:3
represented [3] 1292:9 1392:13,15
reproducible [1] 1395:19
request [6] 1333:14,17 1333:18 1334:8,12,17
requirements [1] 1281:4
research [2] 1348:3 1371:6
respect [1] 1338:21
responsible [1] 1375:9
rest [1] 1327:13
result [4] 1312:9 1314:15 1328:2 1411:5
results [4] 1332:11 1352:24 1393:21,22
resumes [3] 1294:9 1321:3 1362:9
retract [7] 1379:7 1381:23 1387:19 1393:15 1393:19,23 1394:2
retracting [1] 1394:3
retreat [1] 1385:14
Reutlinger [2] 1275:17 1276:2
Revell [1] 1275:14
reverse [4] 1383:22 1386:3,6 1390:8
review [10] 1337:6 1338:17 1340:14 1343:20 1348:3 1402:3 1405:20 1405:22 1421:7,12
reviewed [9] 1340:9 1341:18 1346:10,12,13 1401:24 1402:1 1405:18 1405:20
reviewing [3] 1338:23 1340:12 1347:13
Richard [1] 1275:14
right [66] 1283:17 1284:4 1287:22 1289:22 1290:5 1292:7 1304:4 1307:10 1307:19,24 1308:5 1309:23 1310:6 1311:21 1312:5 1315:23 1316:10 1318:3 1319:3,7 1325:13 1325:24 1326:17 1327:10 1333:5,22 1334:5,10,20 1334:23 1337:10 1340:23 1351:22 1352:4 1353:19 1356:12,16,19 1357:3 1360:7,11 1372:16 1375:17 1376:2 1380:20 1381:19 1385:17 1386:13 1386:17 1388:5 1392:20 1396:13,14 1397:8 1398:4 1402:19 1404:20 1405:7 1408:13 1410:10,15,24 1416:3 1418:12 1426:15 1428:16
right-hand [1] 1424:1
rises [1] 1424:5
Road [1] 1277:11
Rockefeller [1] 1276:10
rod [2] 1293:19 1304:23
role [1] 1381:20
root [2] 1284:8,14
roughly [1] 1425:21
routinely [2] 1344:10,17
run [6] 1333:21,21,23,24 1377:23 1429:15
Runfola [3] 1275:15 1430:2,15

-S-

S [8] 1275:8,12 1277:3,8 1278:6 1279:1 1430:4,19
sale [1] 1426:1
salt [29] 1285:8 1286:2 1286:17 1287:15 1288:20 1292:22 1293:13 1304:19 1305:14,16,20 1306:12 1307:2,16,23 1308:15 1309:11 1310:1,12,19 1311:5,19 1312:1 1317:19 1404:20 1407:8,11 1414:1 1414:1
salts [4] 1285:9,9,16,16
sample [1] 1403:4
saw [1] 1393:4
says [35] 1279:3 1281:17 1281:17 1339:7 1343:13 1344:3 1349:22 1351:4 1351:12 1358:15 1371:13 1371:15 1377:21 1378:4 1381:23 1384:14 1385:7 1385:21 1413:21,22 1414:2,2 1415:16 1419:6 1420:18,19 1422:5,19,20 1422:24 1423:1,23 1428:18,20,23
scavenge [2] 1293:17 1427:13
scavenging [3] 1304:13 1304:15,17 1311:8,12
science [5] 1310:22 1311:1 1315:2 1395:16 1395:18
scientific [8] 1343:22 1344:7 1354:20,23 1395:20 1398:22 1400:13 1401:3
scientist [6] 1385:10,14 1395:4,9,10 1397:22
scientists [3] 1317:6 1395:6 1405:3
Scott [2] 1277:13 1342:1
screen [1] 1382:13
se [1] 1289:10
Sealed [2] 1294:10 1362:10
searched [1] 1379:17
second [13] 1346:24 1347:1 1377:22 1375:22 1378:12 1403:10,11,19 1404:5 1405:5 1412:8 1427:23
seconds [1] 1397:9
secret [3] 1349:3,7 1388:24
Section [1] 1277:7
see [43] 1281:16,19 1285:23 1332:13 1333:3 1333:14 1334:11,12 1335:3 1337:2 1344:2,13 1347:5,7,9,12,17 1348:23 1350:11 1351:9 1352:15 1354:9 1356:13,22,24 1358:8,9 1359:22 1360:1 1361:3,4,6,7,12,15 1372:15 1392:9 1403:16 1412:6 1416:5 1423:24 1424:8,23
seem [1] 1339:12
sees [1] 1384:20
select [1] 1332:18
sellable [1] 1425:17
sensory [2] 1334:14,22
sent [3] 1333:18
sentence [1] 1415:15
separately [1] 1318:5
serves [1] 1374:19
set [3] 1358:20 1383:4 1403:4
seven [2] 1340:20 1389:16
Shea [1] 1277:1
Sheffler [48] 1276:12 1278:4 1279:8 1290:23 1293:24 1304:3 1314:20 1315:6 1320:20 1325:4 1333:2 1336:8,18,20 1338:1 1339:1 1340:1,16 1344:5 1346:9 1359:10 1361:23 1362:5 1370:3 1375:7 1376:13,16,22 1377:2,10,19 1378:9 1379:11 1380:6 1381:12 1384:12,23 1385:23 1386:6 1399:7 1404:4 1406:5,12 1409:19 1419:11 1422:12 1429:9 1429:12
Shehadeh [1] 1348:6
shifts [1] 1354:15
show [20] 1332:9 1372:2 1376:2 1379:4,9 1382:3 1382:13,17 1383:10 1384:9,13 1385:15 1393:9 1393:14 1394:21 1405:13 1421:4,17 1422:18 1423:2
showed [9] 1371:12 1379:12 1387:6 1393:11 1394:12,24 1400:3 1421:9 1422:19
showing [2] 1378:24 1423:5
shown [17] 1316:8 1360:10 1371:5,15,18 1374:3,7,8,10 1382:8 1384:10 1385:3 1390:2 1395:18 1396:22 1397:5 1420:24
shows [6] 1293:15 1379:6 1381:4 1382:14 1386:19 1426:3
side [1] 1424:1
simplest [1] 1306:21
simply [6] 1338:17 1356:5 1385:14 1394:1 1396:8 1421:9
single [4] 1319:16 1343:15 1381:14 1411:17
situation [1] 1339:10
six [1] 1307:16
skeptical [1] 1345:14
slightly [2] 1356:23,24
Slow [2] 1416:2 1425:5
slower [1] 1412:10
slowly [1] 1419:10
small [4] 1413:3 1416:17 1417:2 1422:21
Smith [1] 1276:7
smoke [108] 1282:18 1284:19,20,22 1285:1,4,5 1288:3 1293:2,10 1305:13 1307:24 1308:14 1309:2 1309:3 1310:12,16,18 1311:4 1313:8 1314:7,8 1314:11,16,23 1315:5,9 1315:10,12,17,22 1316:9 1317:11 1318:16,21 1319:2,6 1326:10 1328:10 1329:3 1330:12,13 1331:1 1331:2,9 1335:16 1336:1 1340:3 1342:7 1347:3 1350:20 1360:1 1371:14 1373:24 1375:13 1376:3 1379:7 1382:4,8,15,18 1387:8 1388:2 1392:2,12 1393:1 1394:16 1399:11 1399:22 1406:19 1407:17 1407:23 1408:1,3,6,8,16 1409:3,23 1410:1,6,9,10 1410:12,14 1411:2 1412:9 1413:3,6,22 1415:16,23 1416:10,14,17,23 1417:1 1417:4 1418:23 1419:1,4 1420:20 1422:21 1424:8 1424:17,17,21 1425:7
Smokers [1] 1424:6
smoking [2] 1422:5 1424:3
sold [4] 1319:20 1326:21 1402:15 1426:7
Solely [1] 1388:13
someone [1] 1357:21
sometime [2] 1312:17 1429:13
sometimes [1] 1282:13
somewhere [1] 1341:1
sorry [14] 1288:7 1293:16 1327:1 1330:20 1332:2 1342:16 1356:24 1377:10 1378:14 1398:10 1408:2 1409:22 1417:12 1427:8
sort [1] 1379:24
sounding [1] 1427:6
South [1] 1276:2
Southampton [2] 1330:19 1331:17
Spalding [1] 1276:6
speaking [1] 1284:16
Special [1] 1275:13
specific [5] 1293:21 1310:22,24 1331:5 1396:18
specifically [2] 1293:22 1343:8
spend [1] 1308:8
spoke [1] 1280:2
start [5] 1284:24 1306:11 1327:16 1346:23 1415:19
state [2] 1414:4 1430:20
statement [22] 1291:13 1308:17,18 1317:8 1339:21,24 1379:8 1380:23 1381:24 1391:12 1391:13 1393:15,19,23 1394:2,4 1417:7 1419:9 1420:13 1428:20,23 1429:2
statements [2] 1304:5 1428:22
statistics [1] 1345:6
stay [2] 1362:5 1415:18
stenotypy [1] 1430:7
step [2] 1308:6 1378:15
still [6] 1339:19 1389:17 1391:19 1394:4 1399:21 1419:20
stop [1] 1414:7
stopping [1] 1429:14
straight [1] 1307:7
strange [1] 1426:5
Street [3] 1276:6,15,19
strike [6] 1310:8 1318:10 1318:22 1327:15 1422:12 1429:10
structure [4] 1307:13,15 1411:3,4
studies [13] 1340:9 1344:18 1378:19,24 1385:15 1399:10 1400:13 1400:18,20,24 1401:20 1401:23 1402:1
study [25] 1330:11,17,23 1331:5,24 1332:6,6,10 1333:3 1334:10,13,19,21 1335:2,5 1346:15 1373:16 1373:16 1381:24 1389:12 1394:12 1397:14,19 1398:22 1424:24

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Search: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

(B&W) PROTECTED BY MINNESOTA TOBACCO LITIGATION PROTECTIVE ORDER

subject [2] 1427:17,18
subparts [2] 1376:11,12
subsequent [1] 1339:21
substance [1] 1306:2
substances [1] 1282:17
such [7] 1339:23 1355:6 1381:24 1416:11,14 1418:5 1430:6
suddenly [1] 1401:8
sugar [1] 1328:3
sugars [10] 1327:13,20 1328:1,6,12,13 1329:4,24 1330:2 1340:24
suggest [2] 1359:7 1361:2
suggested [3] 1338:14 1360:23,24
suggestion [1] 1388:14
suggests [5] 1360:15 1374:3 1381:17 1389:23 1420:17
Suite [2] 1276:14,19
sum [2] 1377:2,6
summary [1] 1345:16
support [3] 1390:14 1391:21 1396:6
supports [1] 1383:17
supposed [2] 1421:12 1423:18
supposedly [1] 1341:18
supposition [7] 1354:17 1355:8 1371:10 1375:2 1402:23 1403:10 1404:8
suppositions [1] 1354:16
surface [2] 1424:5,10
surmise [1] 1371:10
surmises [1] 1397:24
survivability [2] 1334:15,24
suspect [2] 1426:19,22
suspicious [2] 1426:19 1426:22
sustained [3] 1317:3 1422:13 1429:11
sworn [1] 1279:2
symbol [2] 1341:7,20
synonymous [1] 1284:13
system [6] 1292:16 1304:11 1305:8 1307:5 1314:3 1370:21
systems [1] 1282:20

-T-

T [2] 1278:2,6
taking [4] 1285:17 1345:4 1347:10 1376:11
talks [1] 1415:13
tape [1] 1429:15
taste [1] 1281:5
tastes [1] 1281:2
technical [2] 1342:19 1348:2
technology [34] 1282:14 1282:16 1283:7,19,22,23 1284:7,8,14 1285:15 1291:12 1292:11 1293:1 1304:7 1305:10,21 1308:11 1312:21 1315:16 1315:18 1317:9 1319:22 1320:2,8 1326:6,18 1359:1 1360:21 1370:6 1371:2 1384:1 1392:23 1400:15 1425:1
telling [2] 1336:1 1401:20
tenure [4] 1349:16 1382:1 1383:12 1384:1
term [7] 1284:15 1286:24 1287:2,4 1288:8 1325:13 1325:20
terminology [2] 1286:9 1288:24
terms [6] 1287:23 1288:2 1310:21 1350:20 1426:19 1426:19
test [14] 1334:4 1339:3,4 1339:7,8,9 1341:13,15,17 1347:15 1352:23,24 1415:8,9
tested [6] 1330:12 1347:14 1350:12 1353:22 1361:14 1372:1
testified [12] 1308:24 1338:8 1355:3,14 1375:11 1376:14,16 1377:6 1390:6 1390:12,18 1413:18
testifying [1] 1387:10
testimony [13] 1283:2,9 1283:16 1294:9 1310:9 1313:21 1321:3 1362:9 1377:15 1378:17 1380:22 1391:11,13
testing [1] 1334:4
tests [1] 1343:7
thank [5] 1337:19 1340:16 1394:5,6 1415:5
theoretically [1] 1326:11
theories [2] 1395:6 1397:24
theory [19] 1316:16,18 1355:4,8 1377:14,17 1383:17 1395:9,9,13
thereabouts [1] 1358:5
thereby [2] 1308:14 1393:1
therefore [12] 1292:14 1293:18 1304:10 1305:7 1306:15 1307:4 1314:2 1370:19 1376:3 1391:6 1392:3 1394:17
Thereupon [6] 1332:22 1336:11 1359:13 1406:8 1423:13 1429:20
third [2] 1340:21 1347:4
Thomas [3] 1275:14 1430:2,15
thought [5] 1315:6 1372:4 1388:8 1396:7 1411:14
thousand [1] 1393:20
thousands [1] 1386:8
thread [1] 1351:8
three [6] 1290:24 1312:20 1347:14 1348:22 1350:10 1371:24
three-quarters [1] 1426:18
through [25] 1279:16 1283:7 1285:13,14 1286:4 1289:6 1293:6 1309:16 1342:14,15,18 1345:5 1350:2,5 1352:22 1354:21 1356:3 1374:13 1381:13 1387:7,8 1391:6 1415:3,4 1416:15
throughout [2] 1349:16 1384:17
times [5] 1289:15 1307:17 1389:13 1393:20 1393:21
tobacco [77] 1275:5 1277:11 1281:1 1282:6 1284:3 1286:1,2 1287:15 1289:3 1310:3,17 1311:17 1314:16 1316:13 1318:12 1318:19,24,24 1319:5,12 1319:14,23 1320:4,9 1325:7,10 1326:1,19,24 1327:4,12,14,19,20,24 1330:13,14 1331:1,2 1333:11 1348:20 1349:19 1349:21 1351:9,24 1353:2 1355:22 1360:5 1361:16 1372:3 1380:12 1383:8 1386:21 1387:7,14,23 1388:9 1392:1 1393:12 1402:4,7 1407:23 1409:12 1409:23 1410 [illegible],14 1412:1 1412:6,9 1413:3,21,22 1417:1 1420:19 1422:20 1425:12 1426:9
tobaccos [3] 1397:12,18 1416:11
today [22] 1280:12 1282:2,24 1308:24 1310:10 1314:5 1356:3 1355:3 1370:8 1371:13 1375:11 1383:11 1387:10 1388:8 1391:23 1392:5,7 1394:8 1395:23 1400:23 1401:13 1420:5
too [1] 1407:14
took [1] 1355:4
top [2] 1340:23 1423:24
topics [1] 1396:18
total [9] 1291:18 1326:13 1341:4 1343:6,10,11 1354:13 1387:24 1400:9
totally [2] 1389:24 1411:16
Tower [2] 1275:18 1276:3
toxicological [1] 1290:4
trade [3] 1349:3,7 1388:24
transcript [7] 1294:10 1321:4 1362:6,11 1403:14 1430:5,7
transfers [1] 1391:7
treat [2] 1319:4,5
treated [14] 1289:14 1318:12,23,24 1319:12 1319:15 1325:8,10 1330:14 1355:22 1356:12 1360:5,21 1361:15
tried [1] 1401:7
trouble [2] 1391:8,17
true [44] 1279:20,23,24 1281:8 1289:12 1291:9 1292:10 1314:14 1315:15 1315:15 1317:8,11,16 1319:19 1325:5 1326:19 1327:11,18 1329:18 1332:14 1355:2,12 1358:19 1371:11 1373:20 1378:13 1393:18 1394:4 1398:24 1399:3,4,7 1402:22 1405:6 1407:22 1408:9 1410:8 1418:22 1419:5,9 1427:4,24 1428:4 1430:6
truth [1] 1394:10
try [3] 1283:15 1414:23 1419:10
trying [3] 1288:24 1305:2 1325:17 1343:2 1350:21
turn [7] 1345:18 1346:19 1348:9 1349:24 1350:4,8 1378:11
turned [4] 1286:5 1381:6 1381:11,16
two [25] 1281:15 1287:13 1314:13 1318:4 1338:11 1348:22 1350:10 1355:17 1375:12,13 1377:7,8 1378:12,18 1392:8 1403:19 1405:23 1406:1 1406:3,17 1413:16 1419:24 1428:22 1429:4 1429:5
type [6] 1325:7,9,21,24 1340:8 1351:7
types [4] 1349:14 1350:11 1354:5 1371:24

-U-

U.S [1] 1277:6
Um-hum [36] 1281:20 1283:1 1286:3 1287:6 1309:24 1325:23 1333:6 1333:9,15 1355:19 1356:14,18,21 1357:2,7 1358:15 1359:23 1360:12 1403:2 1409:10 1410:11 1412:2,4,7 1424:2,9
unaware [3] 1291:10
under [2] 1355:3 1358:17
understand [34] 1283:2 1285:24 1289:1 1290:6 1290:19 1291:6,7 1306:23 1310:10 1311:21 1313:20 1314:4 1317:22 1329:10 1336:5 1340:11 1343:2 1345:7 1347:23 1348:1 1349:23 1350:22 1352:9 1352:12,17 1353:23 1377:9,15 1397:21 1398:11 1410:13 1417:20 1427:9,10
understood [1] 1378:16
unionized [1] 1416:14
unless [1] 1407:8
unprepared [5] 1401:9 1401:12,13,14,16
unreal [1] 1425:23
up [46] 1291:23 1311:17 1314:8,9,11 1316:1 1332:13 1338:15 1352:1 1355:7 1356:23 1358:24 1360:24 1371:2 1372:18 1373:6,12,17,19 1374:1,2 1374:22,24 1379:7 1382:4 1382:9,13 1384:16 1386:22 1387:8,15 1390:4 1391:3,8 1393:13 1402:5 1405:11 1408:23 1419:16 1424:6
upward [3] 1396:21
usable [1] 1282:9
used [27] 1282:13 1286:24 1290:2,19 1293:4 1314:15 1316:8 1317:9 1319:23 1320:3,13 1325:20 1326:14,22 1327:1 1330:7 1358:3 1376:21 1379:19 1389:21 1392:17 1394:14 1397:12 1402:16,17,18 1402:20
uses [2] 1326:1 1376:9
using [5] 1287:24 1290:21 1292:24 1325:12 1392:23

-V-

V [1] 1276:20
validity [1] 1402:23
value [3] 1328:21 1347:3 1353:16
values [1] 1419:5
vapor [1] 1418:23
various [4] 1315:21 1347:8 1354:2,4
varying [1] 1282:4
vast [1] 1326:20
versus [3] 1288:14 1353:2 1407:15
video [4] 1320:23 1325:2 1362:3 1370:2
VIDEOGRAPHER [12] 1279:5 1294:3 1304:1 1320:22 1325:1 1346:3,7 1362:2 1370:1 1403:23 1404:2 1429:16
videotaped [1] 1275:11
view [7] 1283:22 1305:23 1305:24 1309:5 1345:13

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001

1395:5 1404:23
violate [1] 1320:19
volume [4] 1275:23 1294:10 1321:4 1362:10
vs [1] 1275:7

-W-

W [27] 1279:13,21 1280:6 1280:12,16 1281:9 1282:2 1291:9 1314:15 1326:5 1327:4 1330:18,24 1331:15,17 1332:10 1335:11 1342:3 1344:10 1349:16 1384:2,2,3,3 1398:1 1402:16 1411:24
W's [3] 1337:1
Wait [3] 1411:12 1414:13 1419:22
Wallace [11] 1276:11 1279:11 1281:9,14,16 1283:4 1292:9 1370:17 1400:10 1413:2,7
Wallace's [2] 1281:23 1401:15
Warren [1] 1277:8
Washington [3] 1277:2 1277:8 1401:11
watching [1] 1405:13
ways [6] 1284:2,4 1293:8 1293:11 1310:5 1388:7
Weaver [1] 1277:11
weeks [1] 1401:10
well-established [1] 1305:15
well-known [1] 1305:16
Wertheimer [1] 1277:3
West [2] 1276:15,19
whatsoever [1] 1351:11
whole [5] 1385:10 1390:10 1403:16 1415:19 1415:20
wide [2] 1419:4 1420:10
Wigand [42] 1275:8,12 1279:1,9 1281:17 1332:20 1332:22 1336:11 1338:3 1338:7,14 1340:11 1343:14 1346:1 1352:13 1359:13,17 1360:23,24 1361:16 1370:4 1377:21 1377:24 1378:1,16 1382:2 1383:14 1384:4,24 1387:19 1388:7 1390:20 1392:20 1394:9 1395:4 1402:14 1406:8 1421:11 1422:14 1423:13,20 1430:5
Wigand's [4] 1309:5 1375:11 1404:23 1410:13
wild [4] 1372:18 1396:5 1398:17 1427:23
William [1] 1276:8
Williamson [33] 1275:4 1275:18 1276:3 1277:10 1280:11,23 1281:1,18 1282:5 1317:10 1320:15 1325:6 1326:22 1330:11 1333:10 1338:10,24 1340:7 1348:8 1352:6,7 1359:8 1361:13 1377:24 1378:19,23 1379:6 1380:4 1381:7 1392:18 1394:13 1394:23 1395:2
Williamson's [4] 1316:24 1319:9 1334:5 1371:6
willing [5] 1293:5 1336:4 1374:15,17 1395:11
within [3] 1287:24 1293:19 1311:16
without [11] 1315:18 1330:13 1331:1,14 1355:5 1355:22 1356:11 1360:3 1360:4 1393:24 1398:18
witness [22] 1306:8 1314:22 1336:17 1337:22 1338:20 1341:8 1344:15 1344:21,24 1378:21 1379:4 1380:8 1381:6 1383:20 1384:8 1390:23 1395:7,14,17 1412:16 1428:19 1429:5
word [9] 1281:21,22,22 1281:24 1313:13,15,17 1347:10 1376:20
words [4] 1315:5 1317:21 1355:21 1395:12
workbook [1] 1336:24
worked [1] 1388:21
works [4] 1293:9,12 1306:22 1407:15
world [8] 1405:3,12 1413:17 1421:18,19,23 1422:4 1425:11
world's [2] 1396:16,17
worldwide [2] 1399:9 1406:4
worth [2] 1396:17,17
written [1] 1406:14
wrong [24] 1339:7 1349:24 1355:10 1375:17 1375:20,21,21,23,23,24 1376:2,5 1377:5,5 1396:11 1409:14 1410:2 1417:9 1420:6,6,13 1421:3,15,22
wrongfully [1] 1376:5

-X-

X [5] 1278:1,2,6 1377:3,5
XLF [1] 1351:10

-Y-

Y-1 [3] 1349:20,22 1350:17
year [2] 1401:19 1411:23
years [4] 1340:9 1341:18 1344:12,13
yesterday [1] 1360:16
yet [4] 1306:6 1342:15 1416:1 1426:10
yield [1] 1282:8
York [3] 1276:11,11 1277:7
yourself [2] 1418:7,14

-Z-

zero [7] 1353:17 1355:20 1355:24 1357:8,14 1360:3 1398:3

http://legacy.library.ucsf.edu/tid/bnp07a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/ytfl0001